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FEDAI-NSE Currency Futures (Basic) Module Curriculum

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CHAPTER 1

INTRODUCTION TO FOREX AND FOREX DERIVATIVES

The foreign exchange (currency or forex or FX) market exists wherever one currency is traded for another. It is the largest and most liquid financial market in the world. Exchanging currencies can take two basic forms: an outright or a swap. When two parties exchange one currency for another the transaction is called an outright. When two parties agree to exchange and re-exchange (in future) one currency for another, it is called a swap.

1.1 BASIC FOREIGN EXCHANGE DEFINITIONS

Spot: Foreign exchange spot trading is buying one currency with a different currency for immediate delivery. The standard settlement convention for Foreign Exchange Spot trades is T+2 days, i.e., two business days from the date of trade execution. An exception is the USD/CAD (US – Canadian Dollars) currency pair which settles T+1. Rates for days other than spot are always calculated with reference to spot rate.

Forward Outright: A foreign exchange forward is a contract between two counterparties to exchange one currency for another on any date after spot. In this transaction, money does not actually change hands until some agreed upon future date. The duration of the trade can be a few days, months or years. For most major currencies, three business days or more after deal date would constitute a forward transaction.

	Settlement date / Value Date	**Definition**
Value Cash	Trade Date	Same day as deal date
Value Tom (Tomorrow)	Trade Date + 1	1 business day after deal date
Spot	Trade Date + 2	2 business days after deal date*
Forward Outright	Trade Date + 3 or any later date	3 business days or more after deal date, always longer than Spot

* USDCAD is the exception and trades T+1

Base Currency / Terms Currency: In foreign exchange markets, the base currency is the first currency in a currency pair. The second currency is called as the terms currency. Exchange rates are quoted in per unit of the base currency. E.g. the expression Dollar – Rupee, tells you that the Dollar is being quoted in terms of the Rupee. The Dollar is the base currency and the Rupee is the terms currency.

Exchange rates are constantly changing, which means that the value of one currency in terms of the other is constantly in flux. Changes in rates are expressed as strengthening or weakening of one currency vis-à-vis the second currency. Changes are also expressed as appreciation or depreciation of one currency in terms of the second currency. Whenever the base currency buys more of the terms currency, the base currency has strengthened / appreciated and the terms currency has weakened / depreciated. E.g. If Dollar – Rupee moved from 43.00 to 43.25. The Dollar has appreciated and the Rupee has depreciated.

Swaps: A foreign exchange swap is a simultaneous purchase and sale, or vice versa, of identical amounts of one currency for another with two different value dates.

The two currencies are initially exchanged at the Spot Rate and are exchanged back in the future at the Forward Rate. The Forward Rate is derived by adjusting the Spot rate for the interest rate differential of the two currencies for the period between the Spot and the Forward date. Liquidity in one currency is converted into another currency for a period of time. FX Swaps are commonly used as a way to facilitate funding in the cases where funds are available in a different currency than the one needed. Effectively, each party is given the use of an amount of foreign currency for a specific time.

The emergence of the market for derivative products, most notably forwards, futures and options, can be traced back to the willingness of risk-averse economic agents to guard themselves against uncertainties arising out of fluctuations in asset prices. By their very nature, the financial markets are marked by a very high degree of volatility. Through the use of derivative products, it is possible to partially or fully transfer price risks by locking-in asset prices. As instruments of risk management, these generally do not influence the fluctuations in the underlying asset prices. However, by locking-in asset prices, derivative products minimize the impact of fluctuations in asset prices on the profitability and cash flow situation of risk-averse investors.

1.2 DERIVATIVES DEFINED

Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index, or reference rate), in a contractual manner. The underlying asset can be equity, foreign exchange,

commodity or any other asset. For example, wheat farmers may wish to sell their harvest at a future date to eliminate the risk of a change in prices by that date. Such a transaction is an example of a derivative. The price of this derivative is driven by the spot price of wheat which is the "underlying".

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

1. A security derived from a debt instrument, share, loan whether secured or unsecured, risk instrument or contract for differences or any other form of security.

2. A contract which derives its value from the prices, or index of prices, of underlying securities.

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

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

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

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.

Box 1.1: Emergence of financial derivative products

1.3 FACTORS DRIVING THE GROWTH 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 markets,
3. Marked improvement in communication facilities and sharp decline in their costs,
4. Development of more sophisticated risk management tools, providing economic agents 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 as well as transactions costs as compared to individual financial assets.

1.4 DERIVATIVE PRODUCTS

Derivative contracts have several variants. The most common variants are forwards, futures, options and swaps. We take a brief look at various derivatives contracts that have come to be used.

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

Futures: A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. Futures contracts are special types of forward contracts in the sense that they are standardized exchange-traded contracts.

Options: Options are of two types - calls and puts. Calls give the buyer the right but not the obligation to buy a given quantity of the underlying asset, at a given price on or before a given future date. Puts give the buyer the right, but not the obligation to sell a given quantity of the underlying asset at a given price on or before a given date.

Warrants: Options generally have lives of upto one year, the majority of options traded on options exchanges having a maximum maturity of nine months. Longer-dated options are called warrants and are generally traded over-the-counter.

LEAPS: The acronym LEAPS means Long-Term Equity Anticipation Securities. These are options having a maturity of upto three years.

Baskets: Basket options are options on portfolios of underlying assets. The underlying asset is usually a moving average of a basket of assets. Equity index options are a form of basket options.

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

- *Interest rate swaps:* These entail swapping only the interest related cash flows between the parties in the same currency.

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

Swaptions: Swaptions are options to buy or sell a swap that will become operative at the expiry of the options. Thus a swaption is an option on a forward swap. Rather than have calls and puts, the swaptions market has receiver swaptions and payer swaptions. A receiver swaption is an option to receive fixed and pay floating. A payer swaption is an option to pay fixed and receive floating.

1.5 PARTICIPANTS IN THE DERIVATIVES MARKETS

The following three broad categories of participants - hedgers, speculators, and arbitrageurs trade in the derivatives market. Hedgers face risk associated with the price of an asset and they use futures or options markets to reduce or eliminate this risk. Speculators wish to bet on future movements in the price of an asset. Futures and options contracts can give them an extra leverage; that is, they can increase both the potential gains and potential losses in a speculative venture. Arbitrageurs are in business to take advantage of a discrepancy between prices in two different markets. If, for example, they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions in the two markets to lock in a profit.

1.6 ECONOMIC FUNCTION OF THE DERIVATIVES MARKET

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

1. Prices in an organized derivatives market reflect the perception of market participants about the future and lead the prices of underlying to the perceived future level. The prices of derivatives converge with the prices of the underlying at the expiration of the derivative contract. Thus derivatives help in discovery of future as well as current prices.

2. The derivatives market helps to transfer risks from those who have them but may not like them to those who have an appetite for them.

3. Derivatives, due to their inherent nature, are linked to the underlying cash markets. With the introduction of derivatives, the underlying market witnesses higher trading volumes because of participation by more players who would not otherwise participate for lack of an arrangement to transfer risk.

4. Speculative trades shift to a more controlled environment of derivatives market. In the absence of an organized derivatives market, speculators trade in the underlying cash markets. Margining, monitoring and surveillance of the activities of various participants become extremely difficult in these kind of mixed markets.

Early forward contracts in the US addressed merchants' concerns about ensuring that there were buyers and sellers for commodities. However 'credit risk" remained a serious problem. To deal with this problem, a group of Chicago businessmen formed the Chicago Board of Trade (CBOT) in 1848. The primary intention of the CBOT was to provide a centralized location known in advance for buyers and sellers to negotiate forward contracts. In 1865, the CBOT went one step further and listed the first 'exchange traded" derivatives contract in the US, these contracts were called 'futures contracts". In 1919, Chicago Butter and Egg Board, a spin-off of CBOT, was reorganized to allow futures trading. Its name was changed to Chicago Mercantile Exchange (CME). The CBOT and the CME remain the two largest organized futures exchanges, indeed the two largest "financial" exchanges of any kind in the world today.
The first stock index futures contract was traded at Kansas City Board of Trade. Currently the most popular stock index futures contract in the world is based on S&P 500 index, traded on Chicago Mercantile Exchange. During the mid eighties, financial futures became the most active derivative instruments generating volumes many times more than the commodity futures. Index futures, futures on T-bills and Euro-Dollar futures are the three most popular futures contracts traded today. Other popular international exchanges that trade derivatives are LIFFE in England, DTB in Germany, SGX in Singapore, TIFFE in Japan, MATIF in France, Eurex etc.

Box 1.2: History of derivatives markets

5. An important incidental benefit that flows from derivatives trading is that it acts as a catalyst for new entrepreneurial activity. The derivatives have a history of attracting many bright, creative, well-educated people with an entrepreneurial attitude. They often energize others to create new businesses, new products and new employment opportunities, the benefit of which are immense.

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

1.7 EXCHANGE-TRADED VS. OTC DERIVATIVES MARKETS

Derivatives have probably been around for as long as people have been trading with one another. Forward contracting dates back at least to the 12th century, and may well have been around before then. Merchants entered into contracts with one another for future delivery of specified amount of commodities at specified price. A primary motivation for pre-arranging a buyer or seller for a stock of commodities in early forward contracts was to lessen the possibility that large swings would inhibit marketing the commodity after a harvest.

As the name suggests, derivatives that trade on an exchange are called exchange traded derivatives, whereas privately negotiated derivative contracts are called OTC contracts.

The OTC derivatives markets have witnessed rather sharp growth over the last few years, which has accompanied the modernization of commercial and investment banking and globalisation of financial activities. The recent developments in information technology have contributed to a great extent to these developments. While both exchange-traded and OTC derivative contracts offer many benefits, the former have rigid structures compared to the latter.

The OTC derivatives markets have the following features compared to exchange-traded derivatives:

1. The management of counter-party (credit) risk is decentralized and located within individual institutions,
2. There are no formal centralized limits on individual positions, leverage, or margining,
3. There are no formal rules for risk and burden-sharing,
4. There are no formal rules or mechanisms for ensuring market stability and integrity, and for safeguarding the collective interests of market participants, and
5. The OTC contracts are generally not regulated by a regulatory authority and the exchange's self-regulatory organization, although they are affected indirectly by national legal systems, banking supervision and market surveillance.

Some of the features of OTC derivatives markets embody risks to financial market stability. The following features of OTC derivatives markets can give rise to instability in institutions, markets, and the international financial system: (i) the dynamic nature of gross credit exposures; (ii) information asymmetries; (iii) the effects of OTC derivative activities on available aggregate credit; (iv) the high concentration of OTC derivative activities in major institutions; and (v) the central role of OTC derivatives markets in the global financial system. Instability arises when shocks, such as counter-party credit events and sharp movements in asset prices that underlie derivative contracts occur, which significantly alter the perceptions of current and potential future credit exposures. When asset prices change rapidly, the size and configuration of counter-party exposures can become unsustainably large and provoke a rapid unwinding of positions.

There has been some progress in addressing these risks and perceptions. However, the progress has been limited in implementing reforms in risk management, including counter-party, liquidity and operational risks, and OTC derivatives markets continue to pose a threat to international financial stability. The problem is more acute as heavy reliance on OTC derivatives creates the possibility of systemic financial events, which fall outside the more formal clearing house structures. Moreover, those who provide OTC derivative products, hedge their risks through the use of exchange traded derivatives.

Solved Problems

Q: The largest and the most liquid financial market in the world is the _____.

1. Equity market
2. Bond market
3. Foreign Exchange market
4. None of the above

A : The Correct Answer is 3.

Q: The standard settlement convention for Foreign Exchange Spot is _____.

1. T+1 days
2. T+2 days
3. T+3 days
4. None of the above

A : The Correct Answer is 2.

Q: Whenever the base currency buys more of the terms currency, the base currency has _____.

1. Appreciated
2. Become volatile
3. Weakened
4. None of the above

A : The Correct Answer is 1.

Q: Derivatives essentially helps transfer of _____.

1. Funds
2. Risks
3. Goods
4. None of the above

A : The Correct Answer is 2.

CHAPTER 2

INTRODUCTION TO CURRENCY FUTURES

2.1 DEFINITION OF CURRENCY FUTURES

A futures contract is a standardized contract, traded on an exchange, to buy or sell a certain underlying asset or an instrument at a certain date in the future, at a specified price. When the underlying asset is a commodity, e.g. Oil or Wheat, the contract is termed a "commodity futures contract". When the underlying is an exchange rate, the contract is termed a "currency futures contract". In other words, it is a contract to exchange one currency for another currency at a specified date and a specified rate in the future. Therefore, the buyer and the seller lock themselves into an exchange rate for a specific value or delivery date. Both parties of the futures contract must fulfill their obligations on the settlement date.

Currency futures can be cash settled or settled by delivering the respective obligation of the seller and buyer. All settlements however, unlike in the case of OTC markets, go through the exchange.

Currency futures are a linear product, and calculating profits or losses on Currency Futures will be similar to calculating profits or losses on Index futures. In determining profits and losses in futures trading, it is essential to know both the contract size (the number of currency units being traded) and also what is the tick value. A tick is the minimum trading increment or price differential at which traders are able to enter bids and offers. Tick values differ for different currency pairs and different underlyings. For e.g. in the case of the USD-INR currency futures contract the tick size shall be 0.25 paise or 0.0025 Rupees. To demonstrate how a move of one tick affects the price, imagine a trader buys a contract (USD 1000 being the value of each contract) at Rs.42.2500. One tick move on this contract will translate to Rs.42.2475 or Rs.42.2525 depending on the direction of market movement.

Purchase price:	Rs.42.2500
Price increases by one tick:	+Rs.00.0025
New price:	Rs.42.2525

Purchase price:	Rs.42.2500
Price decreases by one tick:	–Rs.00.0025
New price:	Rs.42.2475

The value of one tick on each contract is Rupees 2.50. So if a trader buys 5 contracts and the price moves up by 4 tick, she makes Rupees 50.

Step 1: 42.2600 – 42.2500
Step 2: 4 ticks * 5 contracts = 20 points
Step 3: 20 points * Rupees 2.5 per tick = Rupees 50
(note: please note the above examples do not include transaction fees and any other fees, which are essential for calculating final profit and loss)

2.2 FUTURES TERMINOLOGY

- ***Spot price:*** The price at which an asset trades in the spot market. In the case of USDINR, spot value is T + 2.

- ***Futures price:*** The price at which the futures contract trades in the futures market.

- ***Contract cycle:*** The period over which a contract trades. The currency futures contracts on the NSE have one-month, two-month, three-month up to twelve-month expiry cycles. Hence, NSE will have 12 contracts outstanding at any given point in time.

- ***Value Date/Final Settlement Date:*** The last business day of the month will be termed the Value date / Final Settlement date of each contract. The last business day would be taken to the same as that for Inter-bank Settlements in Mumbai. The rules for Inter-bank Settlements, including those for 'known holidays' and 'subsequently declared holiday' would be those as laid down by FEDAI (Foreign Exchange Dealers Association of India).

- ***Expiry date:*** It is the date specified in the futures contract. This is the last day on which the contract will be traded, at the end of which it will cease to exist. The last trading day will be two business days prior to the Value date / Final Settlement Date.

- ***Contract size:*** The amount of asset that has to be delivered under one contract. Also called as lot size. In the case of USDINR it is USD 1000.

- ***Basis:*** In the context of financial futures, basis can be defined as the futures price minus the spot price. There will be a different basis for each delivery month for each contract. In a normal market, basis will be positive. This reflects that futures prices normally exceed spot prices.

- ***Cost of carry:*** The relationship between futures prices and spot prices can be summarized in terms of what is known as the cost of carry. This measures (in commodity markets) the storage cost plus the interest that is paid to finance or 'carry' the asset till delivery less the income earned on the asset. For equity derivatives carry cost is the rate of interest.

- ***Initial margin:*** The amount that must be deposited in the margin account at the time a futures contract is first entered into is known as initial margin.

- ***Marking-to-market:*** In the futures market, at the end of each trading day, the margin account is adjusted to reflect the investor's gain or loss depending upon the futures closing price. This is called marking-to-market.

- ***Maintenance margin:*** This is somewhat lower than the initial margin. This is set to ensure that the balance in the margin account never becomes negative. If the balance in the margin account falls below the maintenance margin, the investor receives a margin call and is expected to top up the margin account to the initial margin level before trading commences on the next day.

2.3 RATIONALE FOR INTRODUCING CURRENCY FUTURES

Futures markets were designed to solve the problems that exist in forward markets. A futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future at a certain price. But unlike forward contracts, the futures contracts are standardized and exchange traded. To facilitate liquidity in the futures contracts, the exchange specifies certain standard features of the contract. A futures contract is standardized contract with standard underlying instrument, a standard quantity and quality of the underlying instrument that can be delivered, (or which can be used for reference purposes in settlement) and a standard timing of such settlement. A futures contract may be offset prior to maturity by entering into an equal and opposite transaction.

The standardized items in a futures contract are:

- Quantity of the underlying

- Quality of the underlying

- The date and the month of delivery

- The units of price quotation and minimum price change
- Location of settlement

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

The rationale for establishing the currency futures market is manifold. Both residents and non-residents purchase domestic currency assets. If the exchange rate remains unchanged from the time of purchase of the asset to its sale, no gains and losses are made out of currency exposures. But if domestic currency depreciates (appreciates) against the foreign currency, the exposure would result in gain (loss) for residents purchasing foreign assets and loss (gain) for non residents purchasing domestic assets. In this backdrop, unpredicted movements in exchange rates expose investors to currency risks. Currency futures enable them to hedge these risks. Nominal exchange rates are often random walks with or without drift, while real exchange rates over long run are mean reverting. As such, it is possible that over a long – run, the incentive to hedge currency risk may not be large. However, financial planning horizon is much smaller than the long-run, which is typically inter-generational in the context of exchange rates. As such, there is a strong need to hedge currency risk and this need has grown manifold with fast growth in cross-border trade and investments flows. The argument for hedging currency risks appear to be natural in case of assets, and applies equally to trade in goods and services, which results in income flows with leads and lags and get converted into different currencies at the market rates. Empirically, changes in exchange rate are found to have very low correlations with foreign equity and bond returns. This in theory should lower portfolio risk. Therefore, sometimes argument is advanced against the need for hedging currency risks. But there is strong empirical evidence to suggest that hedging reduces the volatility of returns and indeed considering the episodic nature of currency returns, there are strong arguments to use instruments to hedge currency risks.

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

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

The Chicago Mercantile Exchange (CME) created FX futures, the first ever financial futures contracts, in 1972. The contracts were created under the guidance and leadership of Leo Melamed, CME Chairman Emeritus. The FX contract capitalized on the U.S. abandonment of the Bretton Woods agreement, which had fixed world exchange rates to a gold standard after World War II. The abandonment of the Bretton Woods agreement resulted in currency values being allowed to float, increasing the risk of doing business. By creating another another type of market in which futures could be traded, CME currency futures extended the reach of risk management beyond commodities, which were the main derivative contracts traded at CME until then. The concept of currency futures at CME was revolutionary, and gained credibility through endorsement of Nobel-prize-winning economist Milton Friedman.

Today, CME offers 41 individual FX futures and 31 options contracts on 19 currencies, all of which trade electronically on the exchange's CME Globex platform. It is the largest regulated marketplace for FX trading.

Traders of CME FX futures are a diverse group that includes multinational corporations, hedge funds, commercial banks, investment banks, financial managers, commodity trading advisors (CTAs),proprietary trading firms, currency overlay managers and individual investors. They trade in order to transact business, hedge against unfavourable changes in currency rates, or to speculate on rate fluctuations.

2.4 DISTINCTION BETWEEN FUTURES AND FORWARDS CONTRACTS

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

Advantages of Futures:

- Transparency and efficient price discovery. The market brings together divergent categories of buyers and sellers.
- Elimination of Counterparty credit risk.
- Access to all types of market participants. (Currently, in the Forex OTC markets one side of the transaction has to compulsorily be an Authorized Dealer).
- Standardized products.
- Transparent trading platform.

Limitations of Futures:

- The benefit of standardization which often leads to improving liquidity in futures, works against this product when a client needs to hedge a specific amount to a date for which there is no standard contract
- While margining and daily settlement is a prudent risk management policy, some clients may prefer to not incur this cost in favor of OTC forwards, where collateral is usually not demanded

2.5 INTEREST RATE PARITY PRINCIPLE

For currencies which are fully convertible, the rate of exchange for any date other than spot, is a function of spot and the relative interest rates in each currency. The assumption is that, any funds held will be invested in a time deposit of that currency. Hence, the forward rate is the rate which neutralizes the effect of differences in the interest rates in both the currencies.

The forward rate is a function of the spot rate and the interest rate differential between the two currencies, adjusted for time. In the case of fully convertible currencies, having no restrictions on borrowing or lending of either currency the forward rate can be calculated as follows;

Forward Rate = Spot +/- Points

$$\text{Points} = \text{Spot} \left(\frac{1 + \text{terms } i * \frac{\text{days}}{\text{basis}}}{1 + \text{base } i * \frac{\text{days}}{\text{basis}}} - 1 \right)$$

where i = rate of interest

In the context of currencies, like USDINR which are not fully convertible, forwards and futures prices can be influenced by the regulation that is in place at any given point in time.

Solved Problems

Q: When an underlying is an 'exchange rate', the contract is termed as a _____.

1. Currency Futures contract
2. Risks
3. Commodity Futures contract
4. None of the above

A : The Correct Answer is 1.

Q: A tick is the _____ at which traders are able to enter bids and offers.

1. maximum trading increment
2. minimum trading increment
3. price
4. None of the above

A : The Correct Answer is 2.

Q: Futures markets are designed to solve the problems that exist in the _____.

1. spot markets
2. options markets
3. forward markets
4. None of the above

A : The Correct Answer is 3.

Q: CME FX Futures are traded by _____.

1. commercial banks
2. hedge funds
3. investment banks
4. All of the above

A : The Correct Answer is 4.

CHAPTER 3

NSE'S CURRENCY DERIVATIVES SEGMENT

The phenomenal growth of financial derivatives across the world is attributed to the fulfillment of needs of hedgers, speculators and arbitrageurs by these products. In this chapter we look at contract specifications, participants, the payoff of these contracts, and finally at how these contracts can be used by various entities in the economy.

3.1 PRODUCT DEFINITION

RBI has currently permitted futures only on the USD-INR rates. The contract specification of the futures shall be as under:

Underlying
Initially, currency futures contracts on US Dollar – Indian Rupee (USD-INR) would be permitted.

Trading Hours
The trading on currency futures would be available from 9 a.m. to 5 p.m. From Monday to Friday.

Size of the contract
The minimum contract size of the currency futures contract at the time of introduction would be USD 1000.

Quotation
The currency futures contract would be quoted in Rupee terms. However, the outstanding positions would be in dollar terms.

Tenor of the contract
The currency futures contract shall have a maximum maturity of 12 months.

Available contracts
All monthly maturities from 1 to 12 months would be made available.

Settlement mechanism
The currency futures contract shall be settled in cash in Indian Rupee.

Settlement price
The settlement price would be the Reserve Bank of India Reference Rate on

the last trading day.

Final settlement day

Would be the last working day (subject to holiday calendars) of the month. The last working day would be taken to be the same as that for Inter-bank Settlements in Mumbai. The rules for Inter-bank Settlements, including those for 'known holidays' and 'subsequently declared holiday' would be those as laid down by FEDAI (Foreign Exchange Dealers Association of India). In keeping with the modalities of the OTC markets, the value date / final settlement date for the each contract will be the last working day of each month and the reference rate fixed by RBI two days prior to the final settlement date will be used for final settlement. The last trading day of the contract will therefore be 2 days prior to the final settlement date. On the last trading day, since the settlement price gets fixed around 12:00 noon, the near month contract shall cease trading at that time (exceptions: sun outage days, etc.) and the new far month contract shall be introduced.

The contract specification in a tabular form is as under:

Underlying	Rate of exchange between one USD and INR
Trading Hours (Monday to Friday)	09:00 a.m. to 05:00 p.m.
Contract Size	USD 1000
Tick Size	0.25 paise or INR 0.0025
Trading Period	Maximum expiration period of 12 months
Contract Months	12 near calendar months
Final Settlement date/ Value date	Last working day of the month (subject to holiday calendars)
Last Trading Day	Two working days prior to Final Settlement Date
Settlement	Cash settled
Final Settlement Price	The reference rate fixed by RBI two working days prior to the final settlement date will be used for final settlement

3.2 TRADING UNDERLYING VERSUS TRADING FUTURES

The USD-INR market in India is big. Significant volumes get traded on a daily basis. However there are certain restrictions on participation in the underlying OTC market. Access to the USD-INR market is restricted to specified entities like

banks, who are registered as Authorised Dealers and to other entities to have a verifiable underlying commercial exposure. The primary reason for granting access to the FX markets is the need to hedge FX risks. This restriction is not applicable to the futures market.

Consider an importer of machinery from an international country where this import is going to be denominated in dollars. The importer enters into a contract in this regard with the exporter on say, September 01. According to the terms of the contract an amount of USD 1 million is to be paid on November 30. Between these days, the price of USD against INR is bound to fluctuate. The fluctuations can be such that the price of USD goes up (Rupee depreciates) or the price of USD comes down (Rupee appreciates). What if rupee depreciates? This would affect the cost of the machinery, project cost, profitability of the deal and the profitability of the company as a whole.

Let us assume that the Dollar appreciated (Rupee depreciated) during this time from Rs.44.12 to Rs.45.94. The loss on this count would have been Rs.18.20 lakhs. To protect itself the company could do many things. Presumably they could buy dollars on September 01 itself. The cost of USD 1 million works out to Rs.4.41 crores. But this would have tied up a huge amount of the working capital of the company. The cost of funds would have been a financial drain. The company can also book a forward contract. That would depend on its existing banking relationship and limits in this regard.

Instead, internationally many such companies prefer to hedge themselves against foreign exchange fluctuations using exchange traded currency futures contracts. Buying futures to hedge oneself against the payment currency depreciating is a typical strategy employed globally.

In this example, let us presume that the Indian importer chose to protect itself by buying futures. The company needed to buy 1000 contracts as one contract is of USD 1000. 1000 contracts amount to USD 1 million which is the same as the payment needed to be made by the importing company and therefore would totally offset the currency risk associated with the deal. For this purpose, only a very small portion of the total value needs to be put up as margin by the importing company. Typically it may be around say 5%.

Because of the increase in the cost of USD against INR during this period, for the payment on USD 1 million, the company had to pay Rs.4.594 crores as against Rs.4.412 crores. However this increase in cost was offset by the profit realized by being long in the futures contract. By hedging with the futures contracts the company hedged its exposures using currency futures.

While this company bought the currency futures as it had to pay dollars, some other company which may be receiving dollars in India and who hedged using selling futures or an investor with a directional view or a banker who was doing arbitrage would have provided the other side of the trade.

To trade the underlying or its forward, the customer must have a relationship with a banker who is ready to trade for him, exposure to dollar, and the associated

documentation. In this case, it may be noted that the banker may be required to take a credit exposure on the customer.

To trade currency futures, a customer must open a futures trading account with any of the registered members of the recognized exchanges. Buying or selling futures simply involves putting in the margin money. This enables the futures traders to take a position in the underlying currency without having an underlying exposure.

A futures contract represents a promise to transact at some point in the future. In this light, a promise to sell currency is just as easy to make as a promise to buy currency. Selling currency futures without previously owning the currency simply obligates the trader to selling a certain amount of the underlying at some point in the future. It can be done just as easily as buying futures, which obligates the trader to buying a certain amount of the underlying at some point in the future. However since currency futures are settled in cash, the buying and selling does not therefore directly involve delivery of the underlying currency and thus the buying or selling of the actual currency.

3.3 FUTURES PAYOFFS

A payoff is the likely profit/loss that would accrue to a market participant with change in the price of the underlying asset. This is generally depicted in the form of payoff diagrams which show the price of the underlying asset on the X-axis and the profits/losses on the Y-axis.
Futures contracts have linear payoffs. In simple words, it means that the losses as well as profits for the buyer and the seller of a futures contract are unlimited. Options do not have linear payoffs. Their pay offs are non-linear. These linear payoffs are fascinating as they can be combined with options and the underlying to generate various complex payoffs. However, currently only payoffs of futures are discussed as exchange traded foreign currency options are not permitted in India.

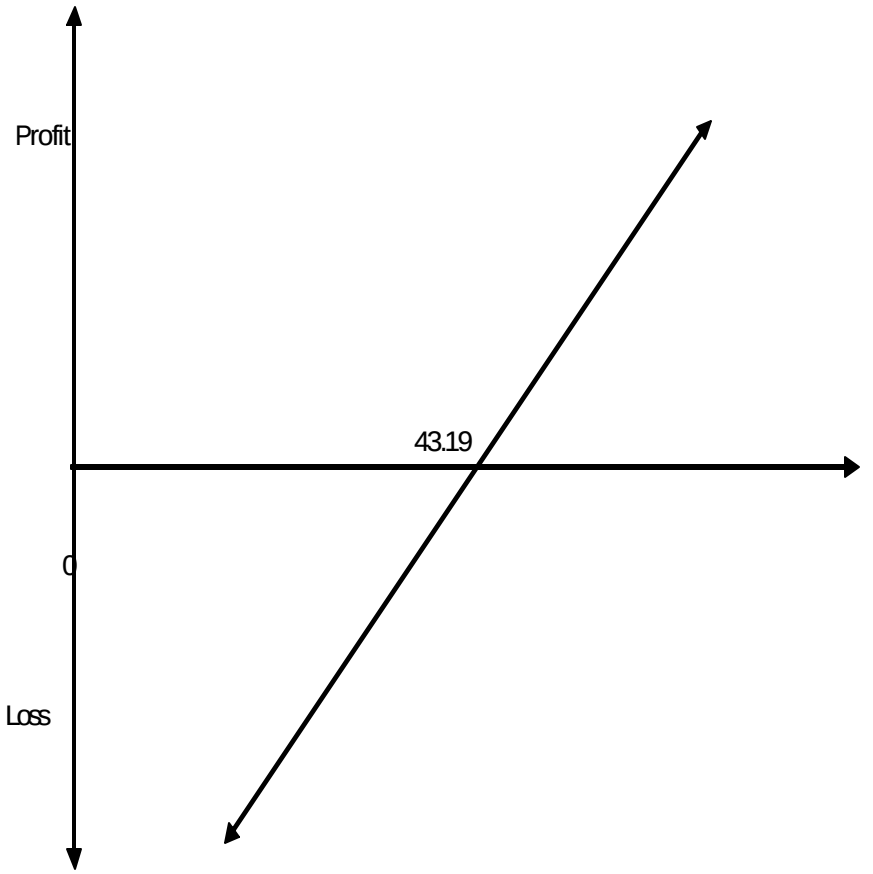
Payoff for buyer of futures: Long futures

The payoff for a person who buys a futures contract is similar to the payoff for a person who holds an asset. He has a potentially unlimited upside as well as a potentially unlimited downside. Take the case of a speculator who buys a two-month currency futures contract when the USD stands at say Rs.43.19.

The underlying asset in this case is the currency, USD. When the value of dollar moves up, i.e. when Rupee depreciates, the long futures position starts making profits, and when the dollar depreciates, i.e. when rupee appreciates, it starts making losses. Figure 4.1 shows the payoff diagram for the buyer of a futures contract.

Figure Payoff for a buyer of currency futures

The figure shows the profits/losses for a long futures position. The investor bought futures when the USD was at Rs.43.19. If the price goes up, his futures position starts making profit. If the price falls, his futures position starts showing losses.



Payoff for seller of futures: Short futures

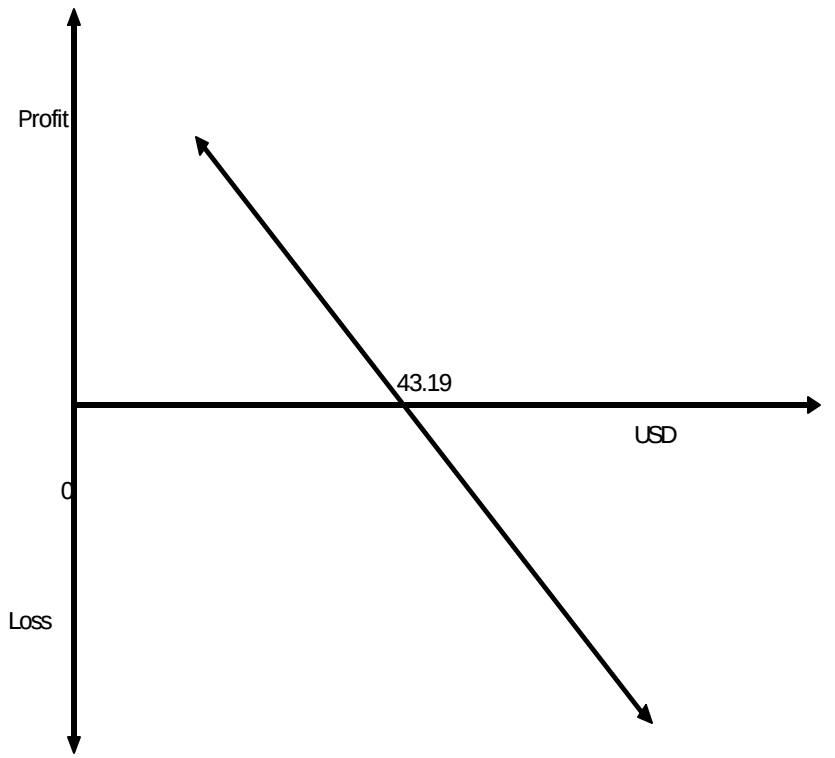
The payoff for a person who sells a futures contract is similar to the payoff for a person who shorts an asset. He has a potentially unlimited upside as well as a potentially unlimited downside. Take the case of a speculator who sells a two-month currency futures contract when the USD stands at say Rs.43.19.

The underlying asset in this case is the currency, USD. When the value of dollar moves down, i.e. when rupee appreciates, the short futures position starts

making profits, and when the dollar appreciates, i.e. when rupee depreciates, it starts making losses. The Figure below shows the payoff diagram for the seller of a futures contract.

Figure Payoff for a seller of currency futures

The figure shows the profits/losses for a short futures position. The investor sold futures when the USD was at 43.19. If the price goes down, his futures position starts making profit. If the price rises, his futures position starts showing losses.



3.4 PRICING FUTURES – COST OF CARRY MODEL

Pricing of futures contract is very simple. Using the cost-of-carry logic, we calculate the fair value of a futures contract. Everytime the observed price deviates from the fair value, arbitragers would enter into trades to capture the arbitrage profit. This in turn would push the futures price back to its fair value. The cost of carry model used for pricing futures is given below:

$$F = Se^{rT}$$

where:

r	Cost of financing (using continuously compounded interest rate)
T	Time till expiration in years
e	2.71828

Example: Security XYZ Ltd trades in the spot market at Rs. 1150. Money can be invested at 11% p.a. The fair value of a one-month futures contract on XYZ Ltd. is calculated as follows:

$$\begin{aligned} F &= Se^{rT} \\ &= 1150 * e^{0.11 * \frac{1}{12}} \\ &= 1160 \end{aligned}$$

We will use the same model for pricing currency futures. However, before that we will see how index and stock futures are priced.

A futures contract on the stock market index gives its owner the right and obligation to buy or sell the portfolio of stocks characterized by the index. Stock index futures are cash settled; there is no delivery of the underlying stocks.

In their short history of trading, index futures have had a great impact on the world's securities markets. Its existence has revolutionized the art and science of institutional equity portfolio management.

The main differences between commodity and equity index futures are that:

- There are no costs of storage involved in holding equity.
- Equity comes with a dividend stream, which is a negative cost if you are long the stock and a positive cost if you are short the stock.

Therefore, Cost of carry = Financing cost - Dividends. Thus, a crucial aspect of dealing with equity futures as opposed to commodity futures is an accurate forecasting of dividends. The better the forecast of dividend offered by a security, the better is the estimate of the futures price.

Pricing index futures given expected dividend yield

If the dividend flow throughout the year is generally uniform, i.e. if there are few historical cases of clustering of dividends in any particular month, it is

useful to calculate the annual dividend yield.

$$F = Se^{(r-q)T}$$

where:

F futures price

S spot index value

r cost of financing

q expected dividend yield

T holding period

Example

A two-month futures contract trades on the NSE. The cost of financing is 10% and the dividend yield on Nifty is 2% annualized. The spot value of Nifty 4000. What is the fair value of the futures contract?

$$\text{Fair value} = 4000e^{(0.1-0.02) \times (60/365)}$$

$$= \text{Rs.}4052.95$$

The cost-of-carry model explicitly defines the relationship between the futures price and the related spot price. As we know, the difference between the spot price and the futures price is called the basis.

Nuances

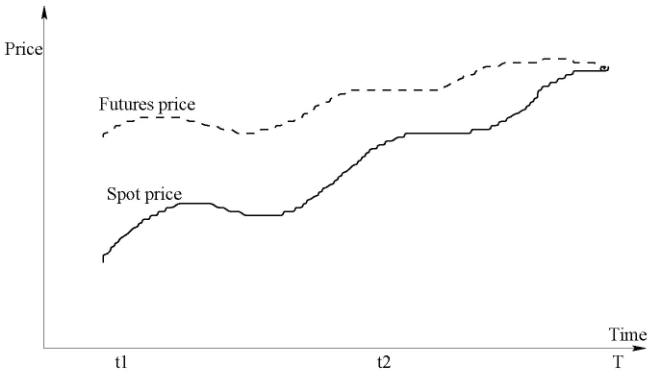
- As the date of expiration comes near, the basis reduces - there is a *convergence* of the futures price towards the spot price. On the date of expiration, the basis is zero. If it is not, then there is an arbitrage opportunity. Arbitrage opportunities can also arise when the basis (difference between spot and futures price) or the spreads (difference between prices of two futures contracts) during the life of a contract are incorrect.

- There is *nothing* but cost-of-carry related arbitrage that drives the behavior of the futures price.

- *Transactions costs* are very important in the business of arbitrage.

Variation of basis over time

The figure shows how basis changes over time. As the time to expiration of a contract reduces, the basis reduces. Towards the close of trading on the day of settlement, the futures price and the spot price converge. The closing price for the June 28 futures contract is the closing value of Nifty 50 on that day.



3.5 PRICING STOCK FUTURES

A futures contract on a stock gives its owner the right and obligation to buy or sell the stocks. Like index futures, stock futures are also cash settled; there is no delivery of the underlying stocks. Just as in the case of index futures, the main differences between commodity and stock futures are that:

- There are no costs of storage involved in holding stock.
- Stocks come with a dividend stream, which is a negative cost if you are long the stock and a positive cost if you are short the stock.

Therefore, Cost of carry = Financing cost - Dividends. Thus, a crucial aspect of dealing with stock futures as opposed to commodity futures is an accurate forecasting of dividends. The better the forecast of dividend offered by a security, the better is the estimate of the futures price.

Pricing stock futures when no dividend expected

The pricing of stock futures is also based on the cost-of-carry model, where the carrying cost is the cost of financing the purchase of the stock, minus the present value of dividends obtained from the stock. If no dividends are expected during the life of the contract, pricing futures on that stock is very simple. It simply involves multiplying the spot price by the cost of carry.

Example

XYZ futures trade on NSE as one, two and three- month contracts. Money can be borrowed at 10% per annum. What will be the price of a unit of new two-month futures contract on SBI if no dividends are expected during the two-month period?

1. Assume that the spot price of XYZ is Rs.228.
2. Thus, futures price $F = 228e^{0.10 \times (60/365)}$

$$= \text{Rs.}231.90$$

Pricing stock futures when dividends are expected

When dividends are expected during the life of the futures contract, pricing involves reducing the cost of carry to the extent of the dividends. The net carrying cost is the cost of financing the purchase of the stock, minus the present value of dividends obtained from the stock.

Example

XYZ futures trade on NSE as one, two and three- month contracts. What will be the price of a unit of new two- month futures contract on XYZ if dividends are expected during the two- month period?

1. Let us assume that XYZ will be declaring a dividend of Rs. 10 per share after 15 days of purchasing the contract.
2. Assume that the market price of XYZ is Rs. 140.
3. To calculate the futures price, we need to reduce the cost- of-carry to the extent of dividend received. The amount of dividend received is Rs.10. The dividend is received 15 days later and hence compounded only for the remainder of 45 days.
4. Thus, futures price =

$$F = 140e^{0.1 \times (60/365)} - 10e^{0.1 \times (45/365)}$$

$$= \text{Rs.}132.20$$

3.6 PRICING CURRENCY FUTURES

The underlying asset in currency futures contract is certain number of units of the foreign currency. In the USD futures contracts, it is 1000 units of USD. The general formula for pricing futures as seen above is :

$$F = Se^{rT}$$

In the general formula discussed above, S would stand for the current spot price of one unit dollar in Rupee terms and F would stand for the future price in Rupees of one unit of USD. This is consistent with the way the terms S and F have been defined above.

A foreign currency has the property that the holder of the currency can earn interest at the risk free interest rate prevailing in the foreign country. For example, the holder can invest the currency in USD denominated bonds. (In this case the country would be US). The risk free interest rate that could be earned in a foreign country for the said period T, is defined as r_f. As in the general formula given above, the domestic risk free rate when money is invested for the time period T shall be referred as r.

The relationship between F and S then could be given as

$$F = Se^{(r-r_f)T}$$

This relationship is known as interest rate parity relationship and is used in international finance. To explain this, let us assume that one year interest rates in US and India are say 7% and 10% respectively and the spot rate of USD in India is Rs. 44.

From the equation above the one year forward exchange rate should be

$$F = 44 * e^{(0.10-0.07)*1} = 45.34$$

Suppose that the one year rate is less than this say Rs.44.50. An arbitrageur can:

1. Borrow 1000 USD at 7% per annum for one year and convert to Rs.44000 and invest the same at 10% (both rates being continuously compounded)

2. An amount of USD 1072.5082 has to be repaid. Buy a forward contract for USD 1072.5082 for Rs.47726.61 (i.e. Rs.44.50*1072.5082)

USD 1000 converted to Rs.44000 and invested at 10% pa grows to 48627.52. Of this Rs.47726.61 shall be used to buy USD 1072.5082 and repay the loan.

The strategy therefore leaves a risk less profit of Rs.900.91

Suppose the rate was greater than 45.34 as given in the equation above, the reverse strategy would work and yield risk less profit.

It may be noted from the above equation, if foreign interest rate is greater than the domestic rate i.e. $r_f > r$, then F shall be less than S. The value of F shall decrease further as time T increase.

If the foreign interest is lower than the domestic rate, i.e. $r_f < r$, then value of F shall be greater than S. The value of F shall increase further as time T increases.

Note : While the above is the theoretical position, in a scenario where capital flows are not unrestricted, as in India, the interest rate differential model would need to be modified somewhat. For the domestic yield (r), it may be necessary to employ MIFOR rates (which are a function of forward rates) instead of nominal rates, while USD yield (r_f) would be the nominal rate as per LIBOR, or any other equivalent published international source.

3.7 PARTICIPANTS AND FUNCTIONS

The participants in this segment shall prima-facie include all the entities who directly or indirectly have exposure to the foreign exchange movements.

Any importer or exporter of goods and services has exposure to foreign currency risk. These entities shall find this product useful for hedging their risks. The entities shall include corporates importing machinery / raw materials or paying for services to an offshore entity, and corporates exporting their products and services abroad. Therefore all entities having trade or capital related flows denominated in foreign currency will have an interest in using this product.

The share holders and creditors of these companies also may be indirectly exposed to the currency risk and hence may find the product useful.

Any entity using such goods and services whose price is exposed to foreign exchange movements may also find this useful. For example, entities who procure, say oil or metals like say zinc, copper, etc. locally, are not importers. However the price of oil and metals are dependant on international price movement and hence expose these users to foreign currency risks. Hence entities who are directly importers or exporters or entities having an indirect or derived exposure are potential users of exchange traded futures. These type of entities who hedge their exposure to foreign currency using currency futures are called as Hedgers.

Apart from hedgers, people who have directional view on the USD-INR movement may also like to trade currency futures. Given the various economic conditions, some of the users may feel that rupee shall appreciate while others may feel the

reverse. These entities are called as speculators and they may also like to trade.

Further, entities that are permitted to trade both in the forward market and futures market may be able to identify mis-pricing of the contract and trade in both the markets to benefit from such mis-pricing. These entities are called as arbitrageurs.

3.8 USES OF CURRENCY FUTURES

Hedging:

Presume Entity A is expecting a remittance for USD 1000 on 27 August 08. Wants to lock in the foreign exchange rate today so that the value of inflow in Indian rupee terms is safeguarded. The entity can do so by selling one contract of USD-INR futures since one contract is for USD 1000.

Presume that the current spot rate is Rs.43 and 'USDINR 27 Aug 08' contract is trading at Rs.44.2500. Entity A shall do the following:

Sell one August contract today. The value of the contract is Rs.44,250.

Let us assume the RBI reference rate on August 27, 2008 is Rs.44.0000. The entity shall sell on August 27, 2008, USD 1000 in the spot market and get Rs. 44,000. The futures contract will settle at Rs.44.0000 (final settlement price = RBI reference rate).

The return from the futures transaction would be Rs. 250, i.e. (Rs. 44,250 – Rs. 44,000). As may be observed, the effective rate for the remittance received by the entity A is Rs.44.2500 (Rs.44,000 + Rs.250)/1000, while spot rate on that date was Rs.44.0000. The entity was able to hedge its exposure.

Speculation: Bullish, buy futures

Take the case of a speculator who has a view on the direction of the market. He would like to trade based on this view. He expects that the USD-INR rate presently at Rs.42, is to go up in the next two-three months. How can he trade based on this belief? In case he can buy dollars and hold it, by investing the necessary capital, he can profit if say the Rupee depreciates to Rs.42.50. Assuming he buys USD 10000, it would require an investment of Rs.4,20,000. If the exchange rate moves as he expected in the next three months, then he shall make a profit of around Rs.10000. This works out to an annual return of around 4.76%. It may please be noted that the cost of funds invested is not considered in computing this return.

A speculator can take exactly the same position on the exchange rate by using futures contracts. Let us see how this works. If the INR- USD is Rs.42 and the three month futures trade at Rs.42.40. The minimum contract size is USD 1000. Therefore the speculator may buy 10 contracts. The exposure shall be the same as

above USD 10000. Presumably, the margin may be around Rs.21,000. Three months later if the Rupee depreciates to Rs. 42.50 against USD, (on the day of expiration of the contract), the futures price shall converge to the spot price (Rs. 42.50) and he makes a profit of Rs.1000 on an investment of Rs.21,000. This works out to an annual return of 19 percent. Because of the leverage they provide, futures form an attractive option for speculators.

Speculation: Bearish, sell futures

Futures can be used by a speculator who believes that an underlying is over-valued and is likely to see a fall in price. How can he trade based on his opinion? In the absence of a deferral product, there wasn't much he could do to profit from his opinion. Today all he needs to do is sell the futures.

Let us understand how this works. Typically futures move correspondingly with the underlying, as long as there is sufficient liquidity in the market. If the underlying price rises, so will the futures price. If the underlying price falls, so will the futures price. Now take the case of the trader who expects to see a fall in the price of USD-INR. He sells one two-month contract of futures on USD say at Rs. 42.20 (each contact for USD 1000). He pays a small margin on the same. Two months later, when the futures contract expires, USD-INR rate let us say is Rs.42. On the day of expiration, the spot and the futures price converges. He has made a clean profit of 20 paise per dollar. For the one contract that he sold, this works out to be Rs.2000.

Arbitrage:

Arbitrage is the strategy of taking advantage of difference in price of the same or similar product between two or more markets. That is, arbitrage is striking a combination of matching deals that capitalize upon the imbalance, the profit being the difference between the market prices. If the same or similar product is traded in say two different markets, any entity which has access to both the markets will be able to identify price differentials, if any. If in one of the markets the product is trading at higher price, then the entity shall buy the product in the cheaper market and sell in the costlier market and thus benefit from the price differential without any additional risk.

One of the methods of arbitrage with regard to USD-INR could be a trading strategy between forwards and futures market. As we discussed earlier, the futures price and forward prices are arrived at using the principle of cost of carry. Such of those entities who can trade both forwards and futures shall be able to identify any mis-pricing between forwards and futures. If one of them is priced higher, the same shall be sold while simultaneously buying the other which is priced lower. If the tenor of both the contracts is same, since both forwards and futures shall be settled at the same RBI reference rate, the transaction shall result in a risk less profit.

Solved Problems

Q: On 15th January Mr. Arvind Sethi bought a January USDINR futures contract which cost him Rs.42,000. Each USDINR futures contract is for delivery of USD1000. The RBI reference rate for final settlement was fixed as 42.10. How much profit/loss did he make?

1. +6000
2. -4500
3. -300
4. +100

A: Mr. Sethi bought one futures contract costing him Rs.42,000. At a market lot of 1000, this means he paid Rs.42 per USD. On the futures expiration day, the futures price converges to the spot price. The reference rate for final settlement is fixed as 42.10. Hence he will have made of profit of (42.10 – 42.00)* 1000. The correct answer is number 4.

Q: Kantaben sold a August USDINR futures contract for Rs.42,000 on 15th January. Each USDINR futures contract is for delivery of USD1000. The RBI reference rate for final settlement was fixed as 42.10. How much profit/loss did she make?

1. -300
2. -100
3. +300
4. +100

A: Kantaben sold one futures contract costing her Rs.42,000. At a market lot of 1000, this means she paid Rs.42 per USD. On the futures expiration day, the futures price converges to the spot price. The reference rate for final settlement is fixed as 42.10. Hence she will have made a loss of (42.00 – 42.10)* 1000. The correct answer is number 2.

Q: A speculator with a bullish view on USD-INR rate can _____.

1. buy USD INR futures
2. buy index futures
3. sell USD INR futures
4. sell index futures

A: The correct answer is number 1.

Q: Application of Currency Futures include _____.

1. Hedging
2. Arbitrage
3. Speculation
4. All of the above

A : The Correct Answer is 4.

CHAPTER 4

TRADING

In this chapter we shall take a brief look at the trading system for NSE's Currency Derivatives segment. However, the best way to get a feel of the trading system is to actually watch the screen and observe trading.

4.1 CURRENCY DERIVATIVES TRADING SYSTEM

The Currency Derivatives trading system of NSE, called NEAT-CDS (National Exchange for Automated Trading – Currency Derivatives Segment) trading system, provides a fully automated screen-based trading for currency futures on a nationwide basis as well as an online monitoring and surveillance mechanism. It supports an order driven market and provides complete transparency of trading operations. The online trading system is similar to that of trading of equity derivatives in the Futures & Options (F&O) segment of NSE.

The software for the Currency Derivatives segment has been developed to facilitate efficient and transparent trading in Currency Derivatives instruments. Keeping in view the familiarity of trading members with the current F&O trading system, modifications have been performed in the existing F&O trading system so as to make it suitable for trading currency futures.

4.1.1 Entities in the trading system

There are four entities in the trading system. Trading members, clearing members, professional clearing members and participants.

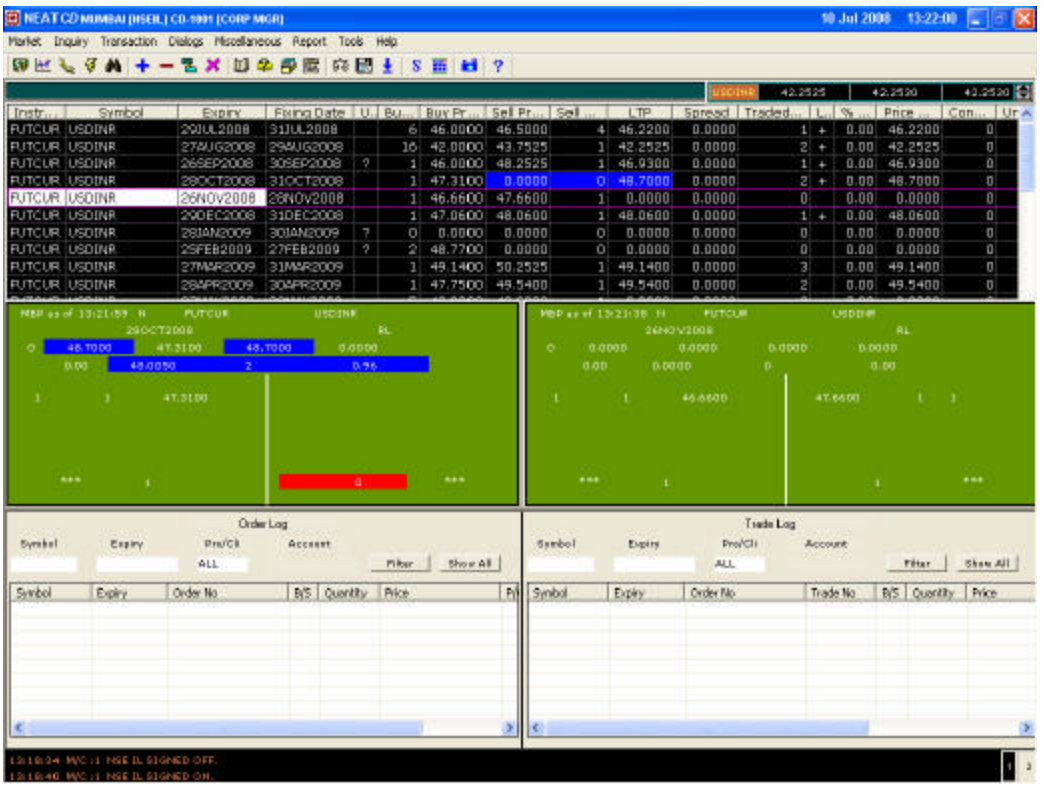
1) ***Trading members (TM):*** Trading members are members of NSE. They can trade either on their own account or on behalf of their clients including participants. The exchange assigns a trading member ID to each trading member. Each trading member can have more than one user. The number of users allowed for each trading member is notified by the exchange from time to time. Each user of a trading member must be registered with the exchange and is assigned an unique user ID. The unique trading member ID functions as a reference for all orders/trades of different users. This ID is common for all users of a particular trading member. It is the responsibility of the trading member to maintain adequate control over persons having access to the firm's User IDs.

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

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

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

Figure 4.1 Market by price in NEAT CDS



4.1.2 Basis of trading

The NEAT-CDS system supports an order driven market, wherein orders match automatically. Order matching is essentially on the basis of security, its price and time. All quantity fields are in contracts and price in Indian rupees. The exchange notifies the contract size and tick size for each of the contracts traded on this segment from time to time. When any order enters the trading system, it is an active order. It tries to find a match on the opposite side of the book. If it finds a match, a trade is generated. If it does not find a match, the order becomes passive and sits in the respective outstanding order book in the system.

4.1.3 Corporate hierarchy

In the trading software, a trading member has the facility of defining a hierarchy amongst users of the system. This hierarchy comprises corporate manager, branch manager and dealer.

1) ***Corporate manager:*** The term 'Corporate manager' is assigned to a user placed at the highest level in a trading firm. Such a user can perform all the functions such as order and trade related activities, receiving reports for all branches of the trading member firm and also all dealers of the firm. Additionally, a corporate manager can define limits for the branches and dealers of the firm.

2) ***Branch manager:*** The branch manager is a term assigned to a user who is placed under the corporate manager. Such a user can perform and view order and trade related activities for all dealers under that branch. Additionally, a branch manager can define limits for the dealers under that branch.

3) ***Dealer:*** Dealers are users at the lower most level of the hierarchy. A dealer must be linked either with the branch manager or corporate manager of the firm. A Dealer can perform view order and trade related activities only for oneself and does not have access to information on other dealers under either the same branch or other branches.

Below given cases explain activities possible for specific user categories:

Corporate manager of the clearing member

Corporate manager of the clearing member has limited rights on the trading system. A corporate manager of the clearing member can perform following functions:

- On line custodian/ 'give up' trade confirmation/ rejection for the participants
- Limit set up for the trading member / participants
- View market information like trade ticker, Market Watch etc.
- View net position of trading member / Participants

Corporate Manager of the trading member

This is the top level of the trading member hierarchy with trading right. A corporate manager of the trading member can broadly perform following functions:

- Order management and trade management for self
- View market information
- Set up branch level and dealer level trading limits for any branch/ dealer of the trading member
- View, modify or cancel outstanding orders on behalf of any dealer of the trading member
- View, modify or send cancel request for trades on behalf of any dealer of the trading member
- View day net positions at branch level and dealer level and cumulative net position at firm level

Branch manager of trading member

The next level in the trading member hierarchy with trading right is the branch manager. One or more dealers of the trading member can be a branch manager for the trading member. A branch manager of the trading member can broadly perform the following functions:

- Order management and trade management of self
- View market information
- Set up dealer level trading limits for any dealer linked with the branch
- View, modify or cancel the outstanding orders on behalf of any dealers linked with the branch
- View, modify or send cancel request for trades on behalf of any dealer of the dealer linked with the branch
- View day net positions at branch level and dealer level

Dealer of a trading member

The dealer is at the last level of the trading member hierarchy with trading right. The dealer can be set up either under a branch manager or corporate manager. A dealer of the trading member can broadly perform the following functions:

- Order management and trade management of self
- View market information
- Set up order level trading limits for self
- View net position
- Back up of online orders and trades for self

4.1.4 Client Broker Relationship in Derivatives Segment

A client of a trading member is required to enter into an agreement with the trading member before commencing trading. A client is eligible to get all the details of his or her orders and trades from the trading member. A trading member must ensure compliance particularly with relation to the following while dealing with clients:

1. Filling of 'Know Your Client' form

2. Execution of Client Broker agreement

3. Bring risk factors to the knowledge of client by getting acknowledgement of client on risk disclosure document

4. Timely execution of orders as per the instruction of clients in respective client codes.

5. Collection of adequate margins from the client

6. Maintaining separate client bank account for the segregation of client money.

7. Timely issue of contract notes as per the prescribed format to the client

8. Ensuring timely pay-in and pay-out of funds to and from the clients

9. Resolving complaint of clients if any at the earliest.

10. Avoiding receipt and payment of cash and deal only through account payee cheques

11. Sending the periodical statement of accounts to clients

12. Not charging excess brokerage

13. Maintaining unique client code as per the regulations.

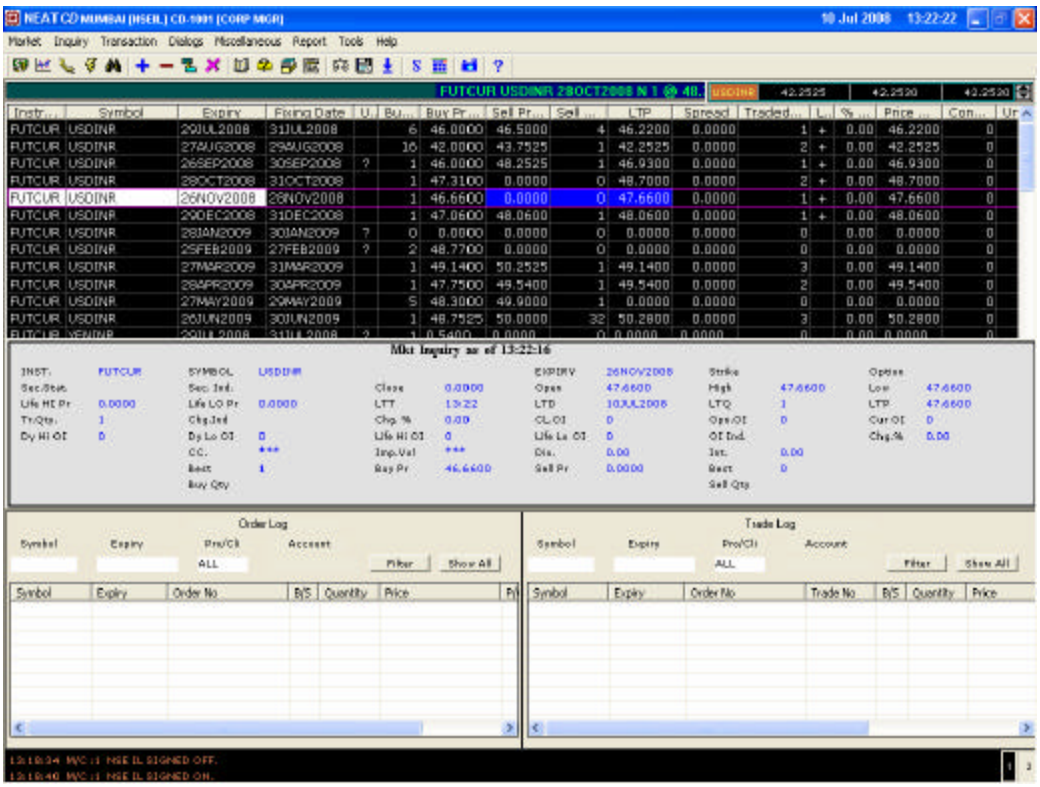
4.1.5 Order types and conditions

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

- Time conditions
- Price conditions
- Other conditions

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

Figure 4.2 Market Inquiry



- **Time conditions**

  - ***Day order:*** A day order, as the name suggests is an order which is valid for the day on which it is entered. If the order is not executed during the day, the system cancels the order automatically at the end of the day.
  - ***Immediate or Cancel (IOC):*** An IOC order allows the user to buy or sell a contract as soon as the order is released into the system, failing which the order is cancelled from the system. Partial match is possible for the order, and the unmatched portion of the order is cancelled immediately.

- **Price condition**

  - ***Stop-loss:*** This facility allows the user to release an order into the system, after the market price of the security reaches or crosses a threshold price e.g. if for stop-loss buy order, the trigger is 42.0025, the limit price is 42.2575 , then this order is released into the system once the market price reaches or exceeds 42.0025. This order is added to the regular lot book with time of triggering as the time stamp, as a limit order of 42.2575. Thus, for the stop loss buy order, the trigger price has to be less than the limit price and for the stop-loss sell order, the trigger price has to be greater than the limit price.

- **Other conditions**

  - ***Market price:*** Market orders are orders for which no price is specified at the time the order is entered (i.e. price is market price). For such orders, the trading system determines the price.

  - ***Trigger price:*** Price at which an order gets triggered from the stop-loss book.

  - ***Limit price:*** An order to a broker to buy a specified quantity of a security at or below a specified price, or to sell it at or above a specified price (called the limit price). This ensures that a person will never pay more for the stock than whatever price is set as his/her limit. It is also the price of orders after triggering from stop-loss book.

  - ***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.

4.2 THE TRADER WORKSTATION

4.2.1 The market watch window

The following windows are displayed on the trader workstation screen:

- Title bar
- Menu Bar
- Toolbar
- Ticker window of Currency Derivatives segment
- Ticker window of spot market
- Market watch window
- Inquiry window
- Snap quote
- Order/trade window
- System message window

As mentioned earlier, the best way to familiarize oneself with the screen and its various segments is to actually spend some time studying a live screen. In this section we shall restrict ourselves to understanding just two segments of the workstation screen, the market watch window and the inquiry window.

The market watch window is the fifth window from the top of the screen which is always visible to the user. This is the main window from the dealer's perspective. The purpose of market watch is to allow continuous monitoring of contracts that are of specific interest to the user. It displays trading information for contracts selected by the user.

4.2.2 Inquiry window

The inquiry window enables the user to view information such as Market by Price (MBP), Previous Trades (PT), Outstanding Orders (OO), Activity log (AL), Snap Quote (SQ), Order Status (OS), Market Movement (MM), Market Inquiry (MI), Net Position, On line backup, Most active security and so on. Relevant information for the selected contracts can be viewed. We shall look in detail at the Market by Price (MBP) and the Market Inquiry (MI) screens.

1. ***Market by price (MBP):*** The purpose of the MBP is to enable the user to view passive orders in the market aggregated at each price and are displayed in order of best prices. The window can be invoked by pressing the [F6] key. If a particular contract is selected, the details of the selected contract can be seen on this screen. This enquiry helps the user to view the best outstanding orders for the contracts from Regular Lot order book. The best buy order is with the highest order price among all outstanding orders for the contract whereas the best sell order is with the lowest order price among all outstanding orders for the contract. The

outstanding orders for the contract are aggregated at each price point. The information is displayed for the best 5 price points on the buy side and sell side. The information provided at each of these price points is number of buy orders and total buy order quantity, number of sell orders and total sell quantity. Other statistical details provided on this enquiry are:

- The aggregates for total traded quantity, total buy order quantity and total sell order quantity. The price information on highest traded price, lowest traded price, last traded price and average traded price.

- Carrying cost at the best buy price and at the best sell price for futures contract.

- The market trends with respect to change indicator between traded price of two immediate preceding trades, change percentage between last traded price and previous day's close price.

2. ***Market inquiry (MI):*** The market inquiry screen can be invoked by using the [F11] key. This inquiry facilitates the user to view the order/ trade statistics for the contract descriptor. The information available can be broadly categorized into:

   - **Trade information** - total traded quantity, last traded price, last traded quantity, last traded date and time.

   - **Price information** - previous close price, open price, high price, low price, life time high price and life time low price.

   - **Open interest (OI) information** - Previous day's closing OI, opening OI, high OI, low OI, current OI, life time high OI, life time low OI.

   - **Best order details** - best buy order price, quantity available at the best buy order price, best sell order price and quantity available at the best sell order price.

   - **Market trends information** - net change indicator between last traded price and previous day's close price, change percentage between last traded price and previous day's close price, net change indicator between latest open interest and previous day's closing open interest, change percentage between latest open interest and previous day's closing open interest.

4.2.3 Placing orders on the trading system

While entering orders on the trading system, members are required to identify

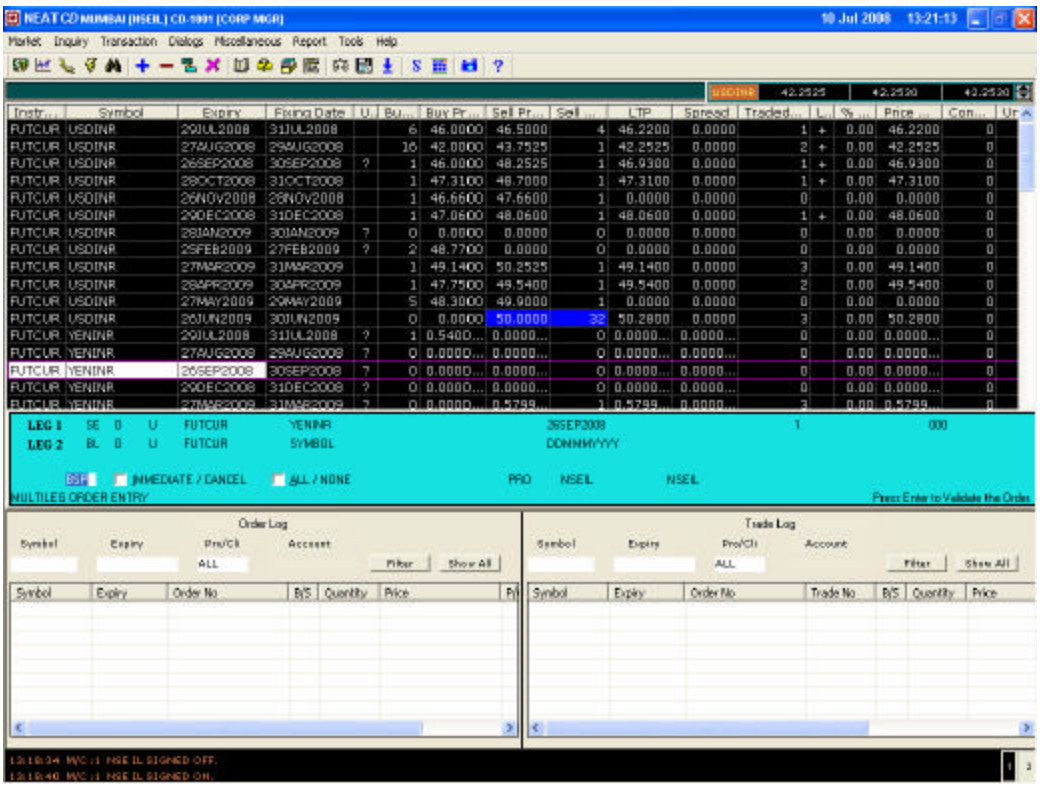
orders as being proprietary or client orders. Proprietary orders should be identified as 'Pro' and those of clients should be identified as 'Cli'. Apart from this, in the case of 'Cli 'orders, the client unique identification number should also be provided.

The futures market is a zero sum game i.e. the total number of long in any contract always equals the total number of short in any contract. The total number of outstanding contracts (long/short) at any point in time is called the "Open interest". This Open interest figure is a good indicator of the liquidity in every contract. Based on studies carried out in F&O segment of NSE, it is found that open interest is maximum in near month expiry contracts.

4.2.4 Market spread order entry

The NEAT-CDS trading system also enables to enter spread orders. Figure 4.3 shows the spread screen. This enables the user to input two orders simultaneously into the market. These orders will have the condition attached to it that unless and until the both the orders finds a counter match, they shall not be traded. This facilitates spread trading strategies with minimum or no price risk.

Figure 4.3 Market spread order entry



4.3 FUTURES MARKET INSTRUMENTS

The Currency Derivatives segment of NSE provides trading facilities for the following derivative instruments at present:

- Currency Derivatives based on rate of exchange between one US Dollar and Indian Rupee (USDINR).

4.3.1 Contract specifications for currency futures

NSE trades Currency Derivatives contracts having near 12 calendar month expiry cycles. All contracts expire on the last working day of every month (subject to holiday calendars). The last trading day for the contract would be two working days prior to the contract expiration date. Thus for a January contract the last trading day would be two working days prior to the expiration date. The contract would cease to trade at 12:00 noon on the last trading day. The new contract with 12th month expiry would be introduced immediately ensuring availability of 12 near month contracts for trading at any point. Depending on the time period for which you want to take an exposure in currency futures contracts, you can place buy and sell orders in the respective contracts. The Instrument type : FUTCUR refers to "Futures contract on currency" and Contract symbol : USDINR denotes a "Futures contract on US Dollars – Indian Rupee " Each futures contract has a separate limit order book. All passive orders are stacked in the system in terms of price-time priority and trades take place at the passive order price (order which has come earlier and residing in the system). The best buy order for a given futures contract will be the order to buy at the highest price whereas the best sell order will be the order to sell at the lowest price.

Contract Specification for US Dollars – Indian Rupee (USDINR) Currency Futures

Contract specification: USD INR Currency Derivatives	
Underlying	Rate of exchange between one USD and INR
Exchange of trading	National Stock Exchange of India Limited
Security descriptor	FUTCUR USDINR
Contract size	USD 1000
Tick size	Re. 0.0025
Price bands	Not applicable
Trading cycle	The futures contracts will have a maximum of twelve months trading cycle. New contract will be introduced following the Expiry of current month contract.

Expiry day	Last working day of the month (subject to holiday calendars)
Last Trading Day	Two working day prior to contract Expiration Date
Settlement basis	Daily mark to market settlement will be on a T +1 basis and final settlement will be cash settled on T+2 basis.
Settlement price	Daily mark to market settlement price will be the closing price of the futures contracts for the trading day and the final settlement price shall be the RBI reference rate on last trading date of the
Settlement	Cash settled
Final Settlement Price	The reference rate fixed by RBI two working days prior to the final settlement date will be used for

4.4 CHARGES

The maximum brokerage chargeable by a trading member in relation to trades effected in the contracts admitted to dealing on the Currency Derivatives segment of NSE is fixed at 2.5% of the contract value. The transaction charges payable to the exchange by the trading member for the trades executed by him on the Currency Derivatives segment would be as prescribed by the Exchange from time to time. The trading members would also contribute to Investor Protection Fund of Currency Derivatives segment at the rate as may be prescribed by the Exchange from time to time.

Solved Problems

Q: The Currency Futures trading system of NSE is called as _____.

1. NEAT-CDS
2. NEAT-F&O
3. NEAT
4. None of the above

A : The Correct Answer is 1.

Q: The Currency Futures trading system of NSE supports a(n) _____.

1. Quote driven market
2. Trade driven market
3. Order driven market
4. None of the above

A : The Correct Answer is 3.

Q: The inquiry window of the NSE's Currency Futures trading system enables the user to view _____.

1. Market By Price (MBP)
2. Activity Log (AL)
3. Previous Trades (PT)
4. All of the above

A : The Correct Answer is 4.

Q: The NSE's Currency Futures trading system also enables _____ trades.

1. Spread
2. Carry
3. Options
4. All of the above

A : The Correct Answer is 1.

CHAPTER 5

CLEARING AND SETTLEMENT

National Securities Clearing Corporation Limited (NSCCL) undertakes clearing and settlement of all trades executed on the Currency Derivatives Segment of the NSE. It also acts as legal counterparty to all trades on the Currency Derivatives segment and guarantees their financial settlement.

5.1 CLEARING ENTITIES

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

5.1.1 Clearing members

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

5.1.2 Clearing banks

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

1) Clearing
2) Settlement
3) Risk Management

Table 5.1 Proprietary position of trading member ABC Ltd. on Day 1

Trading member ABC Ltd. trades for himself and two of his clients. The table shows his proprietary position. Note: A buy position '20000@ 40.0000"means 20 contracts bought at the rate of Rs. 40.0000.

Trading member ABC Ltd.		
Proprietary position	Buy 20*1000*40.0000	Sell 40*1000*40.1500

Buy:

20 = no. of contracts

1000 = contract size (USD)

40.0000 = price (Rs.)

Sell:

40 = no. of contracts

1000 = contract size (USD)

40.1500 = price (Rs.)

Table 5.2 Client position of trading member ABC Ltd. on Day 1

Trading member ABC Ltd. trades for himself and two of his clients. The table shows his client position.

Trading member ABC Ltd.				
Client position	Buy Open	Sell Close	Sell Open	Buy Close
Client A	40*1000*40.0000	20*1000*39.0500		
Client B			60*1000*39.1000	20*1000*40.0000

Trading member ABC Ltd.				
Client position	Buy Open	Sell Close	Sell Open	Buy Close
Client A	40*1000*40.0000	20*1000*39.0500		
Client B			60*1000*39.1000	20*1000*40.0000

5.2 CLEARING MECHANISM

The clearing mechanism essentially involves working out open positions and obligations of clearing (trading-cum-clearing/professional clearing) members. This position is considered for exposure and daily margin purposes. The open positions of Clearing Members (CMs) are arrived at by aggregating the open positions of all the TMs and all custodial participants clearing through him, in contracts in which they have traded. A TM's open position is arrived at as the

summation of his proprietary open position and clients' open positions, in the contracts in which he has traded. While entering orders on the trading system, TMs are required to identify the orders, whether proprietary (if they are their own trades) or client (if entered on behalf of clients) through 'Pro/Cli' indicator provided in the order entry screen. Proprietary positions are calculated on net basis (buy - sell) for each contract. Clients' positions are arrived at by summing together net (buy - sell) positions of each individual client. A TM's open position is the sum of proprietary open position, client open long position and client open short position.

Consider the following example given from Table 5.1 to Table 5.4. The proprietary open position on day 1 is simply = Buy - Sell = 20 - 40 = 20 short. The open position for client A = Buy (O) – Sell (C) = 40 - 20 = 20 long, i.e. he has a long position of 20 units. The open position for Client B = Sell (O) – Buy (C) = 60 - 20 = 40 short, i.e. he has a short position of 40 units. Now the total open position of the trading member ABC Ltd. at end of day 1 is 20 (his proprietary open position on net basis) plus 60 (the Client open positions on gross basis), i.e. 80.

The proprietary open position at end of day 1 is 20 short. The end of day open position for proprietary trades undertaken on day 2 is 20 short. Hence the net open proprietary position at the end of day 2 is 40 short. Similarly, Client A's open position at the end of day 1 is 20 long. The end of day open position for trades done by Client A on day 2 is 20 long. Hence the net open position for Client A at the end of day 2 is 40 long. Client B's open position at the end of day 1 is 40 short. The end of day open position for trades done by Client B on day 2 is 20 short. Hence the net open position for Client B at the end of day 2 is 60 short. The net open position for the trading member at the end of day 2 is sum of the proprietary open position and client open positions. It works out to be 40 + 40 + 60, i.e. 140.

NOTE : All open positions will be multiplied by 1000 (contract size in USD) to arrive at the open position in USD terms

Table 5.3 Proprietary position of trading member ABC Ltd. on Day 2

Assume that the position on Day 1 is carried forward to the next trading day and the following trades are also executed.

Trading member ABC Ltd.		
Proprietary position	Buy 20*1000*40.0000	Sell 40*1000*40.1000

Table 5.4 Client position of trading member ABC Ltd. on Day 2

Trading member ABC Ltd. trades for himself and two of his clients. The table shows his client position on Day 2.

Trading member ABC Ltd.				
Client position	Buy Open	Sell Close	Sell Open	Buy Close
Client A	40*1000*40.0000	20*1000*40.1000		
Client B			60*1000*40.0000	40*1000*40.1000

The following table illustrates determination of open position of a CM, who clears for two TMs having two clients.

Table 5.5 Determination of open position of a clearing member

TMs clearing through CM	Proprietary trades			Trades: Client 1			Trades: Client 2			Open position	
	Buy	Sell	Net	Buy	Sell	Net	Buy	Sell	Net	Long	Short
ABC	40	20	20	30	10	20	40	20	20	60	-
PQR	20	30	-10	20	10	10	10	20	-10	10	20
Total	60	50	20 -10	50	20	30	50	40	20 -10	70	20

5.3 SETTLEMENT MECHANISM

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

5.3.1 Settlement of currency futures contracts

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

Mark to Market settlement (MTM Settlement):

All futures contracts for each member are marked-to-market (MTM) to the daily settlement price of the relevant futures contract at the end of each day. The profits/losses are computed as the difference between:

1. The trade price and the day's settlement price for contracts executed during the day but not squared up.

2. The previous day's settlement price and the current day's settlement price for brought forward contracts.

3. The buy price and the sell price for contracts executed during the day and squared up.

Table 5.6 explains the MTM calculation for a member. The settlement price for the contract for today is assumed to be 43.

The CMs who have a loss are required to pay the mark-to-market (MTM) loss amount in cash which is in turn is passed on to the CMs who have made a MTM profit. This is known as daily mark-to-market settlement. CMs are responsible to collect and settle the daily MTM profits/losses incurred by the TMs and their clients clearing and settling through them. Similarly, TMs are responsible to collect/pay losses/profits from/to their clients by the next day. The pay-in and pay-out of the mark-to-market settlement are effected on the day following the trade day. In case a futures contract is not traded on a day, or not traded during the last half hour, a 'theoretical settlement price' is computed.

After completion of daily settlement computation, all the open positions are reset to the daily settlement price. Such positions become the open positions for the next day.

Table 5.6 Computation of MTM at the end of the day

The table gives the MTM charged on various positions. The MTM settlement on the brought forward contract is the difference between the previous day's settlement price of Rs.40.0000 and today's settlement price of Rs.43.0000. Hence on account of the position brought forward, the MTM shows a profit of Rs.30000. For contracts executed during the day, the difference between the buy price and the sell price determines the MTM. In this example, 20 contracts are bought @ Rs. 40.0000 and 10 contracts sold @ Rs. 42.0000 during the day. Hence the MTM for the position closed during the day shows a profit of Rs.20000. Finally, the open position of contracts traded during the day, is marked to market at the day's settlement price and the profit of Rs.30000 credited to the MTM account. So the MTM account shows a profit of Rs. 80,000.

Trade details	Bought/sold	Settlement price (Rs.)	MTM settlement (Rs.)
Brought forward from previous day	Bought 10*1000*40.0000	43.0000	30*1000
Traded during day : Bought Sold	20*1000*40.0000 10*1000*42.0000		20*1000
Open position (not squared up)	Bought 10*1000*40.0000	43.0000	30*1000
Total			80*1000

Final settlement for futures

On the last trading day of the futures contracts, after the close of trading hours, NSCCL marks all positions of a CM to the final settlement price and the resulting profit/loss is settled in cash. Final settlement loss/profit amount is debited/ credited to the relevant CM's clearing bank account on T+2 working day following last trading day of the contract (Contract expiry Day).

Settlement prices for futures

Daily settlement price on a trading day is the closing price of the respective futures contracts on such day. The closing price for a futures contract is currently calculated as the last half an hour weighted average price of the contract in the Currency Derivatives Segment of NSE. The final settlement price is the RBI reference rate on the last trading day of the futures contract. All open positions shall be marked to market on the final settlement price. Such marked to market profit / loss shall be paid to / received from clearing members.

5.4 RISK MANAGEMENT

NSCCL has developed a comprehensive risk containment mechanism for the Currency Derivatives segment. The salient features of risk containment mechanism on the Currency Derivatives segment are:

1. The financial soundness of the members is the key to risk management. Therefore, the requirements for membership in terms of capital adequacy (net worth, security deposits) are quite stringent.

2. NSCCL charges an upfront initial margin for all the open positions of a CM. It 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®. The CM in turn collects the initial margin from the TMs and their respective clients.

3. The open positions of the members are marked to market based on contract settlement price for each contract. The difference is settled in cash on a T+1 basis.

4. NSCCL's on-line position monitoring system monitors the member open positions and margins on a real-time basis vis-à-vis the deposits provided by the CM/ limits set for the TM by the CM. The on-line position monitoring system generates alerts whenever the margins of a member reaches X% of the capital deposited by the CM or limits set for the TM by the CM. NSCCL monitors the CMs for initial margin and extreme loss margin violations, while TMs are monitored for initial margin violation.

5. CMs are provided a trading terminal for the purpose of monitoring the open positions of all the TMs clearing and settling through him. A CM may set limits for a TM clearing and settling through him. NSCCL assists the CM to monitor the intra-day limits set up by a CM and whenever a TM exceed the limits, it stops that particular TM from further trading.

6. A member is alerted of his position to enable him to adjust his position or bring in additional capital. Margin violations result in withdrawal of trading facility for all TMs of a CM in case of a violation by the CM.

7. A separate settlement guarantee fund for this segment has been created out of the capital of members.

The most critical component of risk containment mechanism for the Currency Derivatives segment is the margining system and on-line position monitoring. The actual position monitoring and margining is carried out on-line through Parallel Risk Management System (PRISM). PRISM uses SPAN® (Standard Portfolio Analysis of Risk) system for the purpose of computation of on-line margins, based on the parameters defined by SEBI.

5.5 MARGINING SYSTEM

Derivatives enable traders to take on leveraged positions. This can be very risky because a small movement in prices of underlying could result in either big gains or big losses. Hence the margining system for derivatives become an important aspect of market functioning and determines the integrity of this market. In this topic we look at some margining concepts and the methodology used for computing margins.

NSCCL has developed a comprehensive risk containment mechanism for the Currency Derivatives segment. The most critical component of a risk containment mechanism is the online position monitoring and margining system. The actual margining is done on-line, on an intra-day basis using PRISM (Parallel Risk Management System) which is the real-time position monitoring and risk management system. The risk of each trading and clearing member is monitored on a real-time basis and alerts/disablement messages are generated if the member crosses the set limits. NSCCL uses the SPAN® (Standard Portfolio Analysis of Risk) system, a portfolio based margining system, for the purpose of calculating initial margins.

5.5.1 NSCCL- SPAN®

The objective of NSCCL- SPAN® is to identify overall risk in a portfolio of all futures contracts for each member. Its over-riding objective is to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to the next day based on 99% VaR methodology.

SPAN® constructs scenarios of probable changes in underlying prices and volatilities in order to identify the largest loss a portfolio might suffer from one day to the next. It then sets the margin requirement to cover this one-day loss. The complex calculations in SPAN® are executed by NSCCL. The results of these calculations are called risk arrays. Risk arrays, and other necessary data inputs for margin calculation are provided to members daily in a file called the SPAN® risk parameter file. Members can apply the data contained in the risk parameter files, to their specific portfolios of futures contracts, to determine their SPAN® margin requirements. Hence, members need not execute complex calculations, which are performed by NSCCL.

In order to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to the next day based on 99% VaR methodology, the price scan range has been currently fixed at 3.5 standard deviation The initial margin so computed would be subject to a minimum of 1.75% on the first day of currency futures trading and a minimum of 1 % thereafter.

5.5.2 SPAN® approach of computing initial margins

The objective of SPAN® is to identify overall risk in a portfolio of futures contracts for each member. Because SPAN® is used to determine performance bond requirements (margin requirements), its overriding objective is to determine the largest loss that a portfolio might reasonably be expected to suffer from one day to the next day.

SPAN® constructs sixteen scenarios of probable changes in underlying prices and volatilities in order to identify the largest loss a portfolio might suffer from one day to the next. It then sets the margin requirement at a level sufficient to cover this one-day loss.

The computation of worst scenario loss has two components. The first is the valuation of each contract under sixteen scenarios. The second is the application of these scenario contract values to the actual positions in a portfolio to compute the portfolio values and the worst scenario loss. The scenario contract values are updated at least 5 times in the day, which may be carried out by taking prices at the start of trading, at 11:00 a.m., at 12:30 p.m., at 2:00 p.m., and at the end of the trading session.

5.5.3 Types of margins

The margining system for Currency Derivatives segment is explained below:

- Initial margin: Margin in the Currency Derivatives segment is computed by NSCCL upto client level for open positions of CMs/TMs. These are required to be paid up-front on gross basis at individual client level for client positions and on net basis for proprietary positions. NSCCL collects initial margin for all the open positions of a CM based on the margins computed by NSCCL-SPAN®. A CM is required to ensure collection of adequate initial margin from his TMs up-front. The TM is required to collect adequate initial margins up-front from his clients.
- Extreme loss margin of 1% on the value of the gross open positions shall be adjusted from the liquid assets of the clearing member on an on line, real time basis.
- Client margins: NSCCL intimates all members of the margin liability of each of their client. Additionally members are also required to report details of margins collected from clients to NSCCL, which holds in trust client margin monies to the extent reported by the member as having been collected form their respective clients.

5.5.4 Calendar Spread :

A calendar spread is a position in an underlying with one maturity which is hedged by an offsetting position in the same underlying with a different maturity: for example, a short position in a July futures contract on USD-INR and a long position in the August futures contract on USD-INR is a calendar spread. Calendar spreads attract lower margins because they are not exposed to market risk of the underlying. If the underlying rises, the July contract would make a profit while the August contract would make a loss.

Solved Problems

Q: In the Currency Derivatives segment, trading member-cum-clearing member, clear and settle _____.

1. their own trades as well as trades of other trading members (TMs).
2. their own trades only
3. trades of other trading members (TMs).
4. All of the above

A : The Correct Answer is 1.

Q: In the Currency Derivatives segment, all open positions will be multiplied by _____ to arrive at the open position in USD terms.

1. 2000 (contract size in USD)
2. 1000 (contract size in USD)
3. 3000 (contract size in USD)
4. None of the above

A : The Correct Answer is 2.

Q: The Final Settlement price of a Currency Futures contract is the _____.

1. MIBOR rate on the last trading day of the futures contract

2. LIBOR reference rate on the last trading day of the futures contract

3. RBI reference rate on the last trading day of the futures contract

4. None of the above

A : The Correct Answer is 3.

Q: The objective of NSCCL- SPAN® is to identify _____ of all futures contracts for each member.

1. the transactions

2. clients

3. overall risk in a portfolio

4. None of the above

A : The Correct Answer is 3.

CHAPTER 6

REGULATORY FRAMEWORK

Derivative markets in India witnessed growth in terms of size, product profile, nature of participants and the development of market infrastructure across all segments – equities, debt, forex in the last decade. In respect of some of them, while the growth is still in its nascent stage, in other areas it has been significant. Along with the products the regulatory framework for these products have also developed.

Pursuant to the amendment of RBI Act in 2006, Reserve Bank of India is broadly empowered to regulate the markets in interest rate derivatives, and foreign currency derivatives.

6.1 REGULATORY FRAMEWORK FOR OTC DERIVATIVES

Until the amendment to the RBI Act in 2006, apparently there was some ambiguity in the legality of OTC derivatives which were cash settled. This was addressed through the amendment in the said Act in respect of derivatives which fall under the regulatory purview of RBI (with underlying as interest rate, foreign exchange rate, credit rating or credit index or price of securities) provided one of the parties to the transaction is RBI, a scheduled bank or any other entity regulated under the RBI Act, Banking Regulation Act or Foreign Exchange Management Act (FEMA). Economic entities in India currently have a menu of OTC products, such as forwards, swaps and options.

ORIGIN OF FOREX MARKETS

The origin of the forex market development in India could be traced back to 1978 when banks were permitted to undertake intra-day trades. However, the market witnessed major activity only in the 1990's with the floating of the currency in March 1993, following the recommendations of the Report of the High Level Committee on Balance of Payments. Currently various products namely foreign exchange forward contracts, foreign currency-rupee swap instruments and currency options – both cross currency as well as foreign currency-rupee, IRS, FRAs, option, etc. are allowed. While these products can be used for a variety of purposes, the fundamental requirement in respect of currency derivative is the existence of an underlying exposure to foreign exchange risk whether on current or capital account. While initially the forward contracts could not be rebooked once cancelled, greater flexibility was

subsequently given for booking cancellation and rebooking of forward contracts.

Exporters and importers

Exporters and importers are allowed to book forward contracts based on past performance. Authorised Dealers (AD) banks may also enter into forward contracts with residents in respect of transactions denominated in foreign currency but settled in Indian Rupees including hedging the currency indexed exposure of importers in respect of customs duty payable on imports. ADs have been delegated powers to allow residents engaged in import and export trade to hedge the price risk on all commodities in international commodity exchanges, with few exceptions like gold, silver. Domestic producers/users are allowed to hedge their price risk on aluminum, copper, lead, nickel and zinc as well as aviation turbine fuel in international commodity exchanges based on their underlying economic exposures.

Small and Medium Enterprises

Small and Medium Enterprises (SME) are permitted to hedge both the underlying as well as anticipated and economic exposures only through the banks with whom they have credit relationship who are allowed to offer such facilities. These facilities should also have some relationship with the turnover of the entity.

Individuals

Similarly, individuals have been permitted to hedge up to USD 100,000 on self declaration basis.

Facilities for Non-residents

Foreign Institutional Investors (FII), persons resident outside India having Foreign Direct Investment (FDI) in India and Non-resident Indians (NRI) are permitted to access to the forwards market to the extent of their exposure in the cash market. FIIs are permitted to hedge currency risk on the market value of entire investment in equity and/or debt in India as on a particular date using forwards. For FDI investors, forwards are permitted to (i) hedge exchange rate risk on the market value of investments made in India since January 1, 1993 (ii) hedge exchange rate risk on dividend receivable on the investments in Indian companies and (iii) hedge exchange rate risk on proposed investment in India. NRIs can hedge balances/amounts in NRE accounts using forwards and FCNR (B) accounts using Rupee forwards as well as cross currency forwards.

6.2 CURRENCY FUTURES

The Indian economy is integrating at a fast pace with the rest of the world. Indian Financial Markets have also been growing significantly. The average daily turnover in the foreign exchange market increased from US $ 23.7 billion in March 2006 to US $ 34.0 billion in March 2007 in consonance with the increase in foreign exchange transactions. Although liberalization helped the Indian forex markets in various ways, extensive fluctuations of exchange rate also occured. These issues have attracted a great deal of interest from policy-makers and investors. Hence in the context of upgrading the Indian foreign exchange market to international standards, a well- developed foreign exchange derivative market (both OTC as well as Exchange traded) is required.

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

6.2.1 RBI-SEBI Standing Technical Committee on Exchange Traded Currency Futures

With a view to enable entities to manage volatility in the currency market, RBI on April 20, 2007 issued comprehensive guidelines on the usage of foreign currency forwards, swaps and options in the OTC market. At the same time, RBI also set up an Internal Working Group to explore the advantages of introducing currency futures. The Report of the Internal Working Group of RBI submitted in April 2008, recommended the introduction of exchange traded currency futures. With the expected benefits of exchange traded currency futures, it was decided in a joint meeting of RBI and SEBI on February 28, 2008, that an RBI-SEBI Standing Technical Committee on Exchange Traded Currency and Interest Rate Derivatives would be constituted. To begin with, the Committee would evolve norms and oversee the implementation of Exchange traded currency futures. The Terms of Reference to the Committee was as under:

1. To coordinate the regulatory roles of RBI and SEBI in regard to trading of Currency and Interest Rate Futures on the Exchanges.

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

The Report of the RBI-SEBI Standing Technical Committee on Exchange Traded Currency Futures is available in SEBI's web site www.sebi.gov.in.

The Reserve Bank of India (RBI) also amended the Foreign Exchange Management (Foreign Exchange Derivative Contracts) Regulation 2000, (Notification No. FEMA 25/RB-2000 dated May 3, 2000), in August 2008 to include 'Currency Futures' as a derivative contract under the regulations. The Foreign Exchange Management (Foreign Exchange Derivative Contracts) Regulation 2000, are regulations of RBI governing forex derivatives

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

6.2.2 Securities Contracts (Regulation) Act, 1956

SC(R)A aims at preventing undesirable transactions in securities by regulating the business of dealing therein and by providing for certain other matters connected therewith. This is the principal Act, which governs the trading of securities in India. The term "securities" has been defined in the SC(R)A. As per Section 2(h), the 'Securities' include:

1. Shares, scrips, stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company or other body corporate.
2. Derivative
3. Units or any other instrument issued by any collective investment scheme to the investors in such schemes.
4. Government securities
5. Such other instruments as may be declared by the Central Government to be securities.
6. Rights or interests in securities.

"Derivative" is defined to include:

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

Section 18A provides that notwithstanding anything contained in any other law for the time being in force, contracts in derivative shall be legal and valid if such contracts are:

- Traded on a recognized stock exchange
- Settled on the clearing house of the recognized stock exchange, in accordance with the rules and bye–laws of such stock exchanges.

6.2.3 Securities and Exchange Board of India 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 in the issuance of capital and transfer of securities, in addition to all intermediaries and persons associated with securities market.

SEBI has been obligated to perform the aforesaid functions by such measures as it thinks fit. 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, sub–brokers 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.

6.2.4 Regulatory framework for Product Design

Initially, only currency futures contracts on US Dollar – Indian Rupee (USD-INR) would be permitted. The trading hours and other contract specifications, clearing, settlement and risk management mechanisms, etc., as stipulated are given in chapter 4 and 5.

6.2.5 Regulatory framework for Exchanges

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

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

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

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

6.2.6 Regulatory framework for Clearing Corporation

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

- The Clearing Corporation should be a company incorporated under the Companies Act, 1956 and should be distinct from the exchange.
- The Clearing Corporation must perform full novation.
- The clearing corporation should enforce the stipulated margin requirements, mark to market settlement, Electronic funds transfer, etc.
- A separate settlement guarantee fund should be created and maintained for meeting the obligations arising out of the currency futures segment. A separate investor protection fund should also be created and maintained for the currency futures market

6.2.7 Governing Council of the Exchange and Clearing Corporation

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

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

6.2.8 Eligibility criteria for members

The membership of the Currency Derivatives Segment shall be separate from the membership of the Equity Derivative Segment or the Cash Segment of a recognized stock exchange. Members in Currency Derivatives segment are required to seek separate registration from SEBI, in addition to their registration as members of

existing stock exchanges. The members of an existing segment of the Exchange would not automatically become the members of Currency Derivatives Segment.

Eligibility Criteria for members in Currency Derivatives Segment

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

1. Individuals;

2. Partnership Firms registered under the Indian Partnership Act, 1932;

3. Corporations, Companies or Institutions or subsidiaries of such Corporations, Companies or Institutions set up for providing financial services;

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

Individuals

Criteria	
AGE	Minimum age : 21 years Maximum age : 60 years
STATUS	Indian Citizen
EDUCATION	At least a graduate or equivalent qualification
EXPERIENCE	Should have a minimum experience in as prescribed by Securities and Exchange Board of India

Partnership Firms

Criteria	
AGE	Minimum age : 21 years (applicable for partners)
STATUS	Registered Partnership firm under Indian Partnership Act, 1932
EDUCATION	Partners should be at least a graduate or equivalent qualification
DESIGNATED PARTNERS EXPERIENCE	Should have a minimum experience in as prescribed by Securities and Exchange Board of India

Corporates

A company as defined in the Companies Act, 1956 (1 of 1956), shall be eligible to be admitted as a member of a Stock Exchange provided :

i. such company is formed in compliance with the provisions of Section 12 of the said Act;

ii. it undertakes to comply with such other financial requirements and norms as may be specified by the Securities and Exchange Board of India for the registration of such company under sub-section (1) of section 12 of the Securities and Exchange Board of India Act, 1992 (15 of 1992);

iii. 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.

Criteria	
AGE	Minimum age : 21 years (applicable for directors)
STATUS	Corporate registered under The Companies Act, 1956 (Indian)
EDUCATION	Two Directors (Designated directors) should be at least graduate or equivalent qualification
DESIGNATED DIRECTORS EXPERIENCE	Should have a minimum experience in as prescribed by Securities and Exchange Board of India
MINIMUM PAID UP EQUITY CAPITAL	Rs.30 lakhs

Professional Clearing Member

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

1.SEBI Registered Custodians; and
2. Banks

Banks

Banks authorized by the Reserve Bank of India under section 10 of the Foreign Exchange Management Act, 1999 as 'AD Category - I bank' are permitted to become trading and clearing members of the currency futures market of the recognized stock exchanges, on their own account and on behalf of their clients, subject to fulfilling the following minimum prudential requirements:

a) Minimum net worth of Rs. 500 crores.

b) Minimum CRAR of 10 per cent.

c) Net NPA should not exceed 3 per cent.

d) Made net profit for last 3 years.

The AD Category - I banks which fulfill the prudential requirements are required to lay down detailed guidelines with the approval of their Boards for trading and clearing of currency futures contracts and management of risks.

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 currency futures market only as clients, subject to approval therefore from the respective regulatory Departments of the Reserve Bank.

Other applicable eligibility criteria

1. Where the applicant is a partnership firm/corporate entity, the applicant shall identify a Dominant Promoter Group as per the norms of the Exchange at the time of making the application. Any change in the shareholding of the company including that of the said Dominant Promoter Group or their shareholding interest shall be effected only with the prior permission of NSEIL/SEBI.

2. The applicant has to ensure that at any point of time they would ensure that atleast individual/one partner/one designated director/compliance officer would have a valid NCFM certification as per the requirements of the Exchange. The above norm would be a continued admittance norm for membership of the Exchange.

3. An applicant must be in a position to pay the membership and other fees, deposits etc, as applicable at the time of admission within three months of intimation to him of admission as a Trading Member or as per the time schedule specified by the Exchange.

4. The trading members and sales persons in the currency futures market must have passed a certification programme which is considered adequate by SEBI. The approved users and sales personnel of the trading member should have passed the certification programme.

5. To begin with, FIIs and NRIs would not be permitted to participate in currency futures market.

6. Strict enforcement of "Know your customer" rule is required. Therefore every client shall be registered with the member. The members are also required to make their clients aware of the risks involved in derivatives trading by issuing to the client the Risk Disclosure Document and obtain a copy of the same duly signed by the client. The members shall enter into a member constituent agreement as stipulated.

7. The Exchange may specify such standards for investor service and infrastructure with regard to any category of applicants as it may deem necessary, from time to time.

Who cannot become a member?

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

a. It has been adjudged bankrupt or a receiver order in bankruptcy has been made against him or he has been proved to be insolvent even though he has obtained his final discharge;

b. it has compounded with his creditors for less than full discharge of debts;

c. it has been convicted of an offence involving a fraud or dishonesty;

d. it is engaged as a principal or employee in any business other than that of Securities, except as a broker or agent not involving any personal financial liability or for providing merchant banking, underwriting or corporate or investment advisory services, unless he undertakes to severe its connections with such business on admission, if admitted;

e. it has been at any time expelled or declared a defaulter by any other Stock Exchange or he has been debarred from trading in securities by an Regulatory Authorities like SEBI, RBI etc;

f. it incurs such disqualification under the provisions of the Securities Contract (Regulations) Act, 1956 or Rules made there-under so as to disentitle such persons from seeking membership of a stock exchange;

g. it incurs such disqualification consequent to which NSE determines it to be not in public interest to admit him as a member on the Exchange, provided that in case of registered firms, body corporates and companies, the condition from (will apply to, all partners in case of partnership firms, all directors in case of companies; NSE may from time to time modify / expand the scope of activities that could be considered as relevant experience for the above purpose.

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

Deposit and Net worth requirements

	Existing Members		**New Members**		**PCM**
Particulars	**Existing Trading Members (in Rs. Lakhs)**	**Existing Trading and Clearing Members (in Rs. Lakhs)**	**New Trading Members (in Rs. Lakhs)**	**New Trading and Clearing Members (in Rs. Lakhs)**	**(in Rs. Lakhs)**
Interest free cash security deposit with NSEIL *	10	10	15	15	NIL
Interest free cash security deposit with NSCCL	NIL	25	NIL	25	25
Collateral Security Deposit with NSCCL	NIL	25	NIL	25	25
NET WORTH REQUIREMENTS (IN Rs. Lakhs)					
Networth Requirements	100	1000	100	1000	1000
Liquid Networth Requirements	NIL	50	NIL	50	50

Notes:

1. The net worth shall be computed as per the method prescribed by Dr. L. C. Gupta Committee Report.

2. In addition to the above, for every trading member the clearing member needs to provide interest free cash deposit of Rs. 5 lakhs and another Rs. 5 lakhs in any of the acceptable forms of collaterals.

Forms of collaterals acceptable at NSCCL

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

Requirements to become authorized / approved user

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

Authorized persons cannot collect any commission or any amount directly from the clients he introduces to the trading member who appointed him. However he can receive a commission or any such amount from the trading member who appointed him as provided under regulation.

Approved users on the Currency Derivatives segment have to pass a certification program which has been approved by SEBI. Each approved user is given a unique identification number through which he will have access to the Trading system. The approved user can access the Trading system through a password and can change such password from time to time.

Position limits

SEBI in the joint report has inter-alia stipulated the position limits as below:

Client Level:

The gross open positions of the client across all contracts should not exceed 6% of the total open interest or 5 million USD whichever is higher. The Exchange will disseminate alerts whenever the gross open position of the client exceeds 3% of the total open interest at the end of the previous day's trade.

Trading Member level:

The gross open positions of the trading member across all contracts should not exceed 15% of the total open interest or 25 million USD whichever is higher. However, the gross open position of a Trading Member, which is a bank, across all contracts, shall not exceed 15% of the total open interest or 100 million USD, whichever is higher.

Clearing Member Level:

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

Reporting of client margin

Clearing Members (CMs) and Trading Members (TMs) are required to collect initial margin, extreme loss margin, calendar spread margin and mark to market settlements from all their Trading Members/ Constituents.

CMs are required to compulsorily report, on a daily basis, details in respect of such margin amount due and collected, from the TMs/ Constituents clearing and settling through them, with respect to the trades executed/ open positions of the TMs/ Constituents, which the CMs have paid to NSCCL, for the purpose of meeting margin requirements.

Similarly, TMs are required to report on a daily basis details in respect of such margin amount due and collected from the constituents clearing and settling through them, with respect to the trades executed/ open positions of the constituents.

The Exchange shall impose stringent penalty on members who do not collect margins from their clients. The Exchange shall also conduct regular inspections to ensure margin collection from clients.

Safeguarding client's money

The Clearing Corporation should segregate the margins deposited by the Clearing Members for trades on their own account from the margins deposited with it on client account. The margins deposited on client account shall not be utilized for fulfilling the dues which a Clearing Member may owe the Clearing Corporation in respect of trades on the member's own account. The client's money is to be held in trust for client purpose only. The following process is to

be adopted for segregating the client's money vis-à-vis the clearing member's money:

At the time of opening a position, the member should indicate whether it is a client or proprietary position.

Margins across the various clients of a member should be collected on a gross basis and should not be netted off.

When a position is closed, the member should indicate whether it was a client or his own position which is being closed.

In the case of default, the margins paid on the proprietary position would only be used by the Clearing Corporation for realising its dues from the member.

6.3 ACCOUNTING

The Institute of Chartered Accountants of India (ICAI) has issued guidance notes on accounting of index futures contracts from the view point of parties who enter into such futures contracts as buyers or sellers. For other parties involved in the trading process, like brokers, trading members, clearing members and clearing corporations, a trade in equity index futures is similar to a trade in, say shares, and does not pose any peculiar accounting problems. It is not clear whether any separate guidance notes would be issued for currency futures.

Just as a parallel, hence in this section, we shall largely focus on the accounting treatment of equity index futures in the books of the client. But before we do so, a quick re-look at some of the terms used.

1. **Clearing corporation/house:** Clearing corporation/house means the clearing corporation/house approved by SEBI for clearing and settlement of trades on the derivatives exchange/segment. All the clearing and settlement for trades that happen on the NSE's market is done through NSCCL.

2. **Clearing member:** Clearing member means a member of the clearing corporation and includes all categories of clearing members as may be admitted as such by the clearing corporation to the derivatives segment.

3. **Client:** A client means a person, on whose instructions and, on whose account, the trading member enters into any contract for the purchase or sale of any contract or does any act in relation thereto.

4. **Contract month:** Contract month means the month in which the exchange/clearing corporation rules require a contract to be finally settled.

5. **Daily settlement price:** Daily settlement price is the closing price of the equity index futures contract for the day or such other price as may be decided by the clearing house from time to time.

6. **Derivative exchange/segment:** Derivative exchange means an exchange approved by SEBI as a derivative exchange. Derivative segment means segment of an existing exchange approved by SEBI as derivatives segment.

7. **Final settlement price:** The final settlement price is the closing price of the equity index futures contract on the last trading day of the contract or such other price as may be specified by the clearing corporation, from time to time.

8. **Long position:** Long position in an equity index futures contract means outstanding purchase obligations in respect of the equity index futures contract at any point of time.

9. **Open position:** Open position means the total number of equity index futures contracts that have not yet been offset and closed by an opposite position.

10. **Settlement date:** Settlement date means the date on which the settlement of outstanding obligations in an equity index futures contract are required to be settled as provided in the Bye-Laws of the Derivatives exchange/segment.

11. **Short position:** Short position in an equity index futures contract means outstanding sell obligations in respect of an equity index futures contract at any point of time.

12. **Trading member:** Trading member means a Member of the Derivatives exchange/segment and registered with SEBI.

6.3.1 Accounting at the inception of a contract

Every client is required to pay to the trading member/clearing member, the initial margin determined by the clearing corporation as per the bye-laws/regulations of the exchange for entering into equity index futures contracts. Such initial margin paid/payable should be debited to “Initial margin - Equity index futures account”. Additional margins, if any, should also be accounted for in the same manner. It may be mentioned that at the time

when the contract is entered into for purchase/sale of equity index futures, no entry is passed for recording the contract because no payment is made at that time except for the initial margin. At the balance sheet date, the balance in the 'Initial margin - Equity index futures account' should be shown separately under the head 'current assets'. In those cases where any amount has been paid in excess of the initial/additional margin, the excess should be disclosed separately as a deposit under the head 'current assets'. In cases where instead of paying initial margin in cash, the client provides bank guarantees or lodges securities with the member, a disclosure should be made in the notes to the financial statements of the client.

6.3.2 Accounting at the time of daily settlement

This involves the accounting of payment/receipt of mark-to-market margin money. Payments made or received on account of daily settlement by the client would be credited/debited to the bank account and the corresponding debit or credit for the same should be made to an account titled as "Mark-to-market margin - Equity index futures account".

Some times the client may deposit a lump sum amount with the broker/trading member in respect of mark-to-market margin money instead of receiving/paying mark-to-market margin money on daily basis. The amount so paid is in the nature of a deposit and should be debited to an appropriate account, say, "Deposit for mark-to-market margin account". The amount of "mark-to-market margin" received/paid from such account should be credited/debited to "Mark-to-market margin - Equity index futures account" with a corresponding debit/credit to "Deposit for mark-to-market margin account". At the year-end, any balance in the "Deposit for mark-to-market margin account" should be shown as a deposit under the head "current assets".

6.3.3 Accounting for open positions

Position left open on the balance sheet date must be accounted for. Debit/credit balance in the "mark-to-market margin - Equity index futures account", maintained on global basis, represents the net amount paid/received on the basis of movement in the prices of index futures till the balance sheet date. Keeping in view 'prudence' as a consideration for preparation of financial statements, provision for anticipated loss, which may be equivalent to the net payment made to the broker (represented by the debit balance in the "mark-to-market margin - Equity index futures account") should be created by debiting the profit and loss account. Net amount received (represented by credit balance in the "mark-to-market margin - Equity index futures account") being anticipated profit should be ignored and no credit for the same should be taken in the profit and loss account. The debit balance in the said "mark-to-market margin - Equity index futures account", i.e., net payment made to the broker, may be shown under the head "current assets,

loans and advances" in the balance sheet and the provision created there-against should be shown as a deduction therefrom. On the other hand, the credit balance in the said account, i.e., the net amount received from the broker, should be shown as a current liability under the head "current liabilities and provisions in the balance sheet".

6.3.4 Accounting at the time of final settlement

This involves accounting at the time of final settlement or squaring-up of the contract. At the expiry of a series of equity index futures, the profit/loss, on final settlement of the contracts in the series, should be calculated as the difference between final settlement price and contract prices of all the contracts in the series. The profit/loss, so computed, should be recognized in the profit and loss account by corresponding debit/credit to "mark-to-market margin - Equity index futures account". However, where a balance exists in the provision account created for anticipated loss, any loss arising on such settlement should be first charged to such provision account, to the extent of the balance available in the provision account, and the balance of loss, if any, should be charged to the profit and loss account. Same accounting treatment should be made when a contract is squared-up by entering into a reverse contract. It appears that, at present, it is not feasible to identify the equity index futures contracts. Accordingly, if more than one contract in respect of the series of equity index futures contracts to which the squared-up contract pertains is outstanding at the time of the squaring of the contract, the contract price of the contract so squared-up should be determined using First-In, First-Out (FIFO) method for calculating profit/loss on squaring-up.

On the settlement of an equity index futures contract, the initial margin paid in respect of the contract is released, which should be credited to "Initial margin - Equity index futures account", and a corresponding debit should be given to the bank account or the deposit account (where the amount is not received).

6.3.5 Accounting in case of a default

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

6.3.6 Disclosure requirements

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

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

The number of equity index futures contracts having open position, number of units of equity index futures pertaining to those contracts and the daily settlement price as of the balance sheet date should be disclosed separately for long and short positions, in respect of each series of equity index futures.

6.4 TAXATION OF DERIVATIVE TRANSACTION IN SECURITIES

6.4.1 Taxation of Profit/Loss on derivative transaction in securities

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

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

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

Solved problems

Q: The Securities and Exchange Board of India Act, 1992 was an act to provide for the establishment of a Board _____.

1. To protect the interests of investors
2. To promote the development of securities market
3. To regulate the securities market
4. All of the above

A: The correct answer is number 4.

Q: The Act that was amended which cleared the ambiguity of OTC derivatives was _____.

1. RBI Act
2. SEBI Act
3. OTC derivatives act
4. None of the above

A: The correct answer is number 1.

Q: As per the requirements of SEBI, a derivatives exchange must have a minimum of _____ members.

1. 100
2. 50
3. 75
4. 25

A: The correct answer is number 2.

Q: Trading members are required to keep an Interest Free Security Deposit with NSCCL. True or False

1. True
2. False

A: The correct answer is number 1.

MODEL TEST

FEDAI - NSE CURRENCY FUTURES (BASIC) MODULE

1) The market where currencies are traded is known as the _____. [1 Mark]

(a) Equity Market
(b) Bond Market
(c) Fixed Income Market
(d) Foreign Exchange Market
(e) I am not attempting the question

2) The USD/CAD (US – Canadian Dollars) currency pair settles in _____ basis. [1 Mark]

(a) T+1
(b) T+2
(c) T+3
(d) T+4
(e) I am not attempting the question

3) A derivatives contract cannot exist without an _____. [1 Mark]

(a) Exchange
(b) Underlying be it equity, interest rate etc.
(c) increase in volatility
(d) increase in arbitrage
(e) I am not attempting the question

4) The first participants who traded in derivatives where those exposed to _____ [1 Mark]

(a) Exchange rate risk
(b) Interest Rate risk
(c) Equity price risks
(d) Commodity price risks
(e) I am not attempting the question

5) OTC Derivatives stand for _____. [2 Marks]

(a) Over the Counter Derivatives
(b) Outstanding Transaction Credit Derivatives
(c) Options Trade Credit Derivatives
(d) Commodity price risks
(e) I am not attempting the question

6) There are no formal rules or mechanisms for ensuring market stability and integrity, and for safeguarding the collective interests of market participants. Which type of Derivatives contracts are being referred to here : [2 Marks]

(a) Over the Counter Derivatives
(b) Exchange traded derivatives
(c) Stock Futures
(d) Commodity derivatives
(e) I am not attempting the question

7) Which type of Derivatives contracts are generally not regulated by a regulatory authority and the exchange's self-regulatory organization, although they are affected indirectly by national legal systems, banking supervision and market surveillance? [2 Marks]

(a) Stock Futures
(b) Exchange traded derivatives
(c) Over the Counter Derivatives
(d) Commodity derivatives
(e) I am not attempting the question

8) In Currency futures contracts, the buyer and the seller lock themselves into an _____ for a specific value or delivery date. [1 Mark]

(a) Interest Rate
(b) Discount Rate
(c) Exchange Rate
(d) Closing Rate
(e) I am not attempting the question

9) The amount of asset that has to be delivered under one contract is the _____. [1 Mark]

(a) US Dollar
(b) Futures quantity
(c) Futures delivery
(d) Contract size
(e) I am not attempting the question

10) Unpredicted movements in exchange rates expose investors to _____.

[1 Mark]

(a) Dollar Risk
(b) Currency Risks
(c) Interest Rate risk
(d) Systematic Risk
(e) I am not attempting the question

11) The standardised items in a futures contract are : _____. [1 Mark]

(a) The date and the month of delivery
(b) The units of price quotation and minimum price change
(c) Location of settlement
(d) All of the above
(e) I am not attempting the question

12) Both Forwards and Futures are traded at the NSE. True or False [2 Marks]

(a) True
(b) False
(c) I am not attempting the question

13) USD-INR currency futures are currently traded at 41.2500. [2 Marks]

(a) One tick move will be 41.2525 or 41.2475
(b) One tick move will be 41.2550 or 41.2450
(c) One tick move will be 41.2565 or 41.2485
(d) One tick move will be 41.2585 or 41.2450
(e) I am not attempting the question

14) Trading in Currency Futures at NSE will be from _____. [1 Mark]

(a) Friday and Saturday
(b) Wednesday to Friday
(c) Monday to Thursday
(d) Monday to Friday
(e) I am not attempting the question

15) NSCCL monitors positions of trading members _____ [2 Marks]

(a) Offline
(b) End of the day
(c) Once a week
(d) Online
(e) I am not attempting the question

16) Trading in Currency Futures at NSE can have the participation of Banks. True or False? [1 Mark]

(a) True
(b) False
I am not attempting the question

17) NSE trades in Currency Options. True or False? [1 Mark]

(a) True
(b) False
(c) I am not attempting the question

18) Arbitragers take advantage of _____ in the markets? [1 Mark]

(a) Hedgers
(b) Volatility
(c) Mispricings
(d) Speculators
(e) I am not attempting the question

19) On 15th January Mr. Arvind Sethi bought a January USDINR futures contract which cost him Rs.43,000. Each USDINR futures contract is for delivery of USD1000. The RBI reference rate for final settlement was fixed as 43.10. How much profit/loss did he make? [3 Marks]

(a) (+) Rs. 1000
(b) (+) Rs. 100
(c) (–) Rs.100
(d) (-) Rs. 1000
(e) I am not attempting the question

20) If you are bullish about the Indian Rupee you would _____. [3 Marks]

(a) Short USDINR currency futures
(b) Go long USDINR currency futures
(c) Buy Dollars
(d) Say neutral since markets may turn volatile
(e) I am not attempting the question

21) Presume Mr. A is expecting a remittance for USD 5000 on 29 August. Wants to lock in the foreign exchange rate today so that the value of inflow in Indian Rupee terms is safeguarded. Mr. A can do so by _____. [3 Marks]

(a) Buying five contracts of USD-INR futures
(b) Selling five contracts of USD-INR futures
(c) Selling five thousand contracts of USD-INR futures
(d) Buying five thousand contracts of USD-INR futures
(e) I am not attempting the question

22) On 15th January Mr. Arvind Sethi bought a January USDINR futures contract which cost him Rs.43,000. Each USDINR futures contract is for delivery of USD1000. The RBI reference rate for final settlement was fixed as 42.90. How much profit/loss did he make? [3 Marks]

(a) (+) Rs. 1000
(b) (+) Rs. 100
(c) (-) Rs.100
(d) (-) Rs. 1000
(e) I am not attempting the question

23) One year interest rates in US and India are say 5% and 10% respectively and the spot rate of USD in India is Rs. 43. Then one year USD-INR futures fair value is : [1 Mark]
(a) Rs. 41.25
(b) Rs. 43.70
(c) Rs. 42.65
(d) Rs. 41.63
(e) I am not attempting the question

24) Under normal circumstances the Futures price trades at a _____ price than the Spot price : [1 Mark]

(a) higher
(b) lower
(c) same price as spot
(d) depends on the type of contract
(e) I am not attempting the question

25) Professional Clearing Members are one of the entities in the clearing and settlement system of the Currency Derivatives Segment. True or False? `
[2 Marks]
(a) True
(b) False
(c) I am not attempting the question

26) There are designated currency future's market makers assigned for making markets in the Currency Derivatives Segment of NSE. True or False? [2 Marks]

(a) True
(b) False
(c) I am not attempting the question

27) The best buy order in the trading system is the order with the _____?

[2 Marks]

(a) Lowest quantity
(b) Highest quantiy
(c) Lowest price
(d) Highest price
(e) I am not attempting the question

28) If an order does not find a match in the trading system, it is _____

[2 Marks]

(a) removed from the trading system after seven days
(b) removed from the trading system at the end of the day
(c) removed from the trading system on the expiry day
(d) removed from the trading system when the buyer / seller wishes
(e) I am not attempting the question

29) A client of a trading member is required to enter into _____ with the trading member before he can commence trading. [2 Marks]

(a) an understanding
(b) an arrangement
(c) negotiations
(d) an agreement
(e) I am not attempting the question

30) A branch manager can define limits for _____. [2 Marks]

(a) Dealers in his branch
(b) Any dealers
(c) The Corporate Manager
(d) The trading member
(e) I am not attempting the question

31) A Corporate manager is higher in the user hierarchy than the Branch Manager. True or False? [2 Marks]

(a) True
(b) False
(c) I am not attempting the question

32) While entering a stop loss order, one needs to specify the _____ [1 Mark]

(a) high price
(b) trigger price
(c) low price
(d) price band
(e) I am not attempting the question

33) The limit price is always set higher than the market price? True or False.

[1 Mark]

(a) True
(b) False
(c) I am not attempting the question

34) 'Cli' order stands for _____. [1 Mark]

(a) Trading member's own order
(b) Client order
(c) Proprietary order
(d) Client ID
(e) I am not attempting the question

35) A Trading member Corporate Manager can set up _____ level and _____ level trading limits for any branch/ dealer of the trading member.

[1 Mark]

(a) Can set limits only for himself
(b) Cannot set up limits
(c) clearing member, trading member
(d) branch, dealer
(e) I am not attempting the question

36) The Currency Derivatives Segment trading system indicates the _____ for each contract. [1 Mark]

(a) client names
(b) basis
(c) arbitrage gain
(d) cost of carry
(e) I am not attempting the question

37) The Currency Derivatives Segment trading system has a ticker window. True or False. [1 Mark]

(a) True
(b) False
(c) I am not attempting the question

38) Proprietary position : Buy 20*1000*40.0000 indicates : [1 Mark]

(a) A Buy position of 20 contracts with contract size of 1000 and a price of Rs. 40.0000
(b) A Buy position of 1000 contracts with contract size of 20 and a price of Rs. 40.0000
(c) A Buy position of 2000 contracts with contract size of 1000 and a price of Rs. 40.0000
(d) A Buy position of 20000 contracts a price of Rs. 40.0000
(e) I am not attempting the question

39) In the Currency Derivatives Segment Clients' positions are arrived at by summing together _____positions of each individual client. [1 Mark]

(a) gross (buy + sell)
(b) net (buy - sell)
(c) net or gross
(d) client's positions are not taken into account in the Currency Derivatives Segment
(e) I am not attempting the question

40) For a USDINR Currency Futures contract at the NSE, the previous day's settlement price is Rs.40.0000 and today's settlement price is Rs.41.0000. An investor's Sell position of 50 contracts is brought forward from the previous day. What will be his market to market settlement value? [2 Marks]

(a) (-) Rs. 50,000
(b) (+) Rs. 50,000
(c) (-) Rs. 5,000
(d) (+) Rs. 5,000
(e) I am not attempting the question

NOTE : THIS IS A SAMPLE TEST. THE ACTUAL TEST WILL CONTAIN 60 QUESTIONS TO BE ANSWERED IN 120 MINS.

Answers :

1	(d)	21	(b)
2	(a)	22	(c)
3	(b)	23	(d)
4	(d)	24	(a)
5	(a)	25	(a)
6	(a)	26	(b)
7	(c)	27	(d)
8	(c)	28	(b)
9	(d)	29	(d)
10	(b)	30	(a)
11	(d)	31	(a)
12	(b)	32	(b)
13	(a)	33	(b)
14	(d)	34	(b)
15	(d)	35	(d)
16	(a)	36	(d)
17	(b)	37	(a)
18	(c)	38	(a)
19	(b)	39	(b)
20	(a)	40	(a)

Note: Candidates are advised to refer to NSE's website: www.nseindia.com while preparing for NCFM test(s) for announcements pertaining to revisions/updations in NCFM modules or launch of new modules, if any.